SigmaSystemCenter 3.1

Configuration Guide

- First Edition -

Copyright (C) NEC Corporation 2003-2012. All rights reserved.

Disclaimer of Warranty

All the information, text, graphics, links or other items contained within this document is provided by copyright law.
All Rights Reserved. No part of this document may be reproduced or transmitted without permission of NEC.
NEC may make changes to this document, at any time without notice.
NEC assumes no responsibility for errors or omissions in this document.
THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.
NEC does not warrant the accuracy or completeness of this document.

Trademark Information

▪ SigmaSystemCenter, MasterScope and SIGMABLADE are registered trademarks or trademarks of NEC Corporation.
▪ ESMPRO is a registered trademark or trademark of NEC Corporation in Japan and other countries.
▪ Microsoft, Windows, Windows Server, Windows Vista, Internet Explorer, SQL Server, and Hyper-V are registered trademarks of Microsoft Corporation in the United States and other countries.
▪ Linux is a registered trademark or trademark of Linus Torvalds in the U.S. and/or other countries.
▪ Red Hat is a registered trademark or trademark of Red Hat, Inc. in the U.S. and/or other countries.
▪ Intel, and Itanium are trademarks of Intel Corporation in the U.S. and/or other countries.
▪ Apache, Apache Tomcat and Tomcat are registered trademarks or trademarks of The Apache Software Foundation.
▪ NetApp, Data ONTAP, FilerView, MultiStore, vFiler, Snapshot and FlexVol are trademarks or registered trademarks of NetApp, Inc. in the United States and/or other countries.

Other names and brands used in this document may be registered trademarks or trademarks of their respective owners.
Note that (R) and TM marks are not indicated in this document.

Contents

Preface xi

How to Use This Manual xi
Manual Organization xi
SigmaSystemCenter Manuals xii
Document Conventions xiv

1. Preliminary Knowledge for Setting up SigmaSystemCenter 3

1.1. Machine Management 4
1.1.1.Managing Machine Operation with SystemProvisioning 4
1.1.2.Transition of Machine Status 5
1.1.3.Group / Model / Host 7
1.1.4.Software Distribution 8
1.1.5.Machine State and Failure Monitoring 9
1.1.6.Failure Recovery With a Policy 11
1.1.7.Controlling Access with a Role 12
1.1.8.What is a Pool Machine? 13
1.1.9.Machine Status 14
1.1.10.Disk Volume Status 18
1.1.11.Machine Types 19
1.1.12.Priority Value 19
1.2. Understanding Basic Operations on the Web Console 21
1.2.1.Operations by the Web Console 21
1.2.2. Views 23
1.2.3.Dashboard 25
1.2.4.Maintenance Operations 26
1.2.5.Enable Popup Message 26
1.2.6.Search 27

2. Initial Operations and Environment Setting of SigmaSystemCenter 29

2.1. Starting the Web Console and Logging In to SigmaSystemCenter 30
2.1.1.Starting the Web Console 30
2.1.2.Logging in to SigmaSystemCenter 31
2.1.3.If You Log in to SigmaSystemCenter for the First Time 32
2.2. Registering License Keys 33
2.3. Adding a SystemProvisioning User 35
2.4. Configuring the Environment 36
2.4.1.Configuring the Setting of Collecting the Configuration Information 36
2.4.2.Configuring the Mail Reporting 37
2.4.3.Configuring the Setting of Recording Notifications to Event Log 38
2.4.4.Configuring the Log Output 39
2.4.5.Configuring the Information of a Virtual Resource 41
2.4.6.Configuring the Root Password of a Virtual Machine Server 42
2.4.7.Configuring the MAC Address Pool 43
2.4.8.Changing the Setting of Auto-Update of Screens 44
2.4.9.Configuring the Setting of Alive Monitor 45
2.4.10.Configuring the Information of Compatible NEC ESMPRO Manager 48
2.4.11.Changing the NEC ESMPRO Manager Retry Count and Interval 48

3. Settings of Related Products 51

3.1. Settings of Related Products 52
3.2. Configuring Settings for a Switch 57
3.2.1.Registering a Switch to MasterScope Network Manager 57
3.2.2.Configuring the Login Management for a Switch in MasterScope Network Manager 58
3.3. Configuring Settings for a Load Balancer 62
3.3.1.Registering a Load Balancer to MasterScope Network Manager 62
3.3.2.Configuring the Login Management for a Load Balancer in MasterScope Network Manager 62

3.4. Configuring Settings for a Software Load Balancer 63
3.4.1.Enabling SSH Connection of Software Load Balancer 63
3.5. Configuring Settings for Storage 64
3.5.1.Preparing Storage 64
3.5.2.Considering the Drive Letter Setting of Partition and Volume 66
3.6. Configuring Settings for a Virtual Environment 68
3.6.1.Setting Up the VMware Environment 68
3.6.2.Setting Up the Xen Environment 69
3.6.3.Setting Up the ESXi Environment 69
3.6.4.Setting Up the Hyper-V Environment 70
3.7. Configuring DPM 71
3.7.1.Starting DPM Web Console 71
3.7.2.Logging into DPM 72
3.7.3.Adding DPM User 72
3.7.4.Registering a Managed Machine to DPM 73
3.7.5.Registering a Virtual Machine to DPM 76
3.7.6.Registering a Virtual Machine Server to DPM 77
3.8. Setting up a Managed Machine 81
3.8.1.Installing NEC ESMPRO Agent 81
3.8.2.Installing DPM Client 81
3.8.3.Configuring Managed Machine to Send Failure Event 82
3.8.4.Configuring the Setting for OOB Management 82
3.8.5.Configuring the Setting for Monitoring Performance by System Monitor - Performance Monitoring Services 83
3.8.6.Setting up to Use the Management Controller Management on NEC ESMPRO Manager 84
3.9. Configuring Settings for Sending Failure Events From the Managed Machine 86
3.9.1.Configuring the Setting on a Machine Running Windows 86
3.9.2.Configuring the Setting on a Machine Running Linux 89
3.10. Preparing for the Use of Out-of-Band (OOB) Management 92
3.10.1.Configuring IP Address of BMC 93
3.10.2.Creating Administrator Account in BMC 93
3.10.3.Configuring Alert Destination of PET and Alert Level 93
3.10.4.Enabling Dump 95
3.10.5.Enabling ACPI Shutdown 96
3.10.6.Configuring Serial Over Lan (SOL) 97
3.11. Creating a Scenario in DPM 102
3.11.1.Operation with Backup / Restore 102
3.11.2.Operation with OS Installation by Disk Duplication 103
3.11.3.Preparing for Backing up the Master Machine 105
3.11.4.Creating a Backup Scenario File 110
3.11.5.Creating a Restore Scenario File 114
3.12. Creating a Master VM in a Virtual Environment 117
3.12.1.Creating a Master VM in vCenter Server 117
3.12.2.Creating a Master VM in XenCenter 118
3.12.3.Creating a Master VM on ESXi 119
3.12.4.Creating a Master VM on Hyper-V 120
3.12.5.Creating a Master VM on KVM 121

4. Registering Resources to SigmaSystemCenter 125

4.1. Registering Resources to SigmaSystemCenter and Starting Operation 126
4.2. Adding a Subsystem 132
4.2.1.Adding VMware vCenter Server as a Subsystem 132
4.2.2.Adding XenServer Pool Master as a Subsystem 134
4.2.3.Adding Hyper-V Cluster as a Subsystem 135
4.2.4.Adding DPM Server as a Subsystem 136
4.2.5.Adding MasterScope Network Manager as a Subsystem 137
4.2.6.Adding Software Load Balancer as a Subsystem 138
4.2.7.Adding a Storage Management Server as a Subsystem 139
4.3. Managing ESXi, Hyper-V and KVM 140
4.3.1.Creating Virtual Manager 140
4.3.2.Adding a Virtual Machine Server 141
4.4. Registering a Switch 143
4.4.1.Registering a Physical Switch 143

4.4.2.Registering a Virtual Switch ... 144
4.4.3.Registering a Distributed Switch ... 144
4.4.4.Adding a VLAN (Port Group) ... 144
4.4.5.Adding a Private VLAN ... 145
4.4.6.Adding a Logical Network ... 146
4.5. Registering a Load Balancer ... 153
4.5.1.Registering a Load Balancer ... 153
4.5.2.Adding a Load Balancer Group ... 154
4.6. Registering Storage ... 158
4.6.1.Registering a Disk Array (For NEC Storage and Symmetrix) ... 158
4.6.2.Registering a Disk Array (For CLARiiON) ... 159
4.6.3.Registering a Disk Array (For NetApp) ... 160
4.6.4.Registering a Disk Volume ... 161
4.6.5.Configuring a Disk Volume to Shared ... 162
4.6.6.Registering a HBA and Path Information (For CLARiiON, Symmetrix) ... 163
4.7. Registering a Machine ... 164
4.7.1.About Registering a Machine ... 164
4.7.2.Adding a Resource Group ... 164
4.7.3.Registering a Machine ... 165
4.8. Preparing Distribution Software ... 166
4.8.1.Checking a Scenario That Can Be Used From SystemProvisioning ... 166
4.8.2.Checking a Template That Can Be Used From SystemProvisioning ... 167
4.8.3.Adding a Local Script ... 168
4.9. Configuring Machine Property Setting ... 169
4.9.1.Configuring Settings on the General Tab ... 170
4.9.2.Configuring Settings on the Network Tab ... 171
4.9.3.Configuring Settings on the Storage Tab ... 173
4.9.4.Configuring Settings on the Software Tab ... 174
4.9.5.Checking the Software Distribution History Tab ... 174
4.9.6.Configuring Settings on the Account Tab ... 174
4.10. Creating a Policy ... 178
4.10.1.Standard Policy ... 179
4.10.2.Creating a Policy ... 180
4.10.3.Adding a Policy ... 181
4.10.4.Copying an Existing Policy ... 182
4.10.5.Configuring Policy Property Settings ... 183
4.10.6.Configuring Event Handler Settings of a Policy Monitoring Event ... 185
4.10.7.Enabling and Disabling Settings of a Policy Monitoring Event ... 188
4.10.8.Importing and Exporting a Policy ... 189
4.11. Creating a Profile ... 190
4.11.1.How to Create a Machine Profile ... 190
4.11.2.How to Create a Host Profile ... 190
4.11.3.How to Create a Monitoring Profile ... 191

5. Creating an Operation Group ... 195

5.1. Adding a Category ... 196
5.2. Configuring the Access Authority and Operation Authority ... 197
5.2.1.Adding a Role ... 197
5.2.2.Configuring the Authority to a Category ... 199
5.2.3.Configuring the Authority to an Operation Group ... 200
5.2.4.Configuring the Authority to a Machine ... 200
5.2.5.Configuring the Authority to a Datacenter ... 201
5.2.6.Configuring the Authority to a Virtual Machine Server ... 202
5.2.7.Configuring the Authority to a Resource Group ... 202
5.2.8.Releasing the Allocation of a Role ... 203
5.2.9.Changing the Allocation of a Role ... 204
5.2.10.Configuring a Role for the System ... 205
5.2.11.Configuring a Role for All Resources ... 208
5.3. Adding an Operation Group ... 210
5.4. Configuring Group Properties ... 211
5.4.1.Configuring Settings on the General Tab ... 211
5.4.2.Configuring Settings on the Model Tab ... 213
5.4.3.Configuring Settings on the Host Tab ... 215

5.4.4.Configuring Settings on the Storage Tab 217
5.4.5.Configuring Settings on the Software Tab 221
5.4.6.Configuring Settings on the Network Setting Tab (if the Model Type is Physical or VM Server) 223
5.4.7.Configuring Settings on the LB Setting Tab 225
5.4.8.Configuring Settings on the Machine Profile Tab (if the Model Type is VM) 226
5.4.9.Configuring Settings on the Host Profile Tab (Windows Server) 231
5.4.10.Configuring Settings on the Host Profile Tab (Linux) 234
5.4.11.Configuring Settings on the Host Profile Tab (Windows Client) 236
5.4.12.Configuring Settings on the Datastore Tab (if the Model Type is VM Server) 239
5.4.13.Configuring Settings on the Alive Monitor Tab 240
5.4.14.Configuring Settings on the Performance Monitor Tab 243
5.5. Configuring Model Properties (For a Physical Machine) 245
5.5.1.Configuring Settings on the General Tab 245
5.5.2.Configuring Settings on the Storage Tab 247
5.5.3.Configuring Settings on the Software Tab 250
5.5.4.Configuring Settings on the Alive Monitor Tab 252
5.5.5.Configuring Settings on the Performance Monitor Tab 253
5.6. Configuring Model Properties (For a Virtual Machine) 256
5.6.1.Configuring Settings on the General Tab 257
5.6.2.Configuring Settings on the Software Tab 259
5.6.3.Configuring Settings on the Machine Profile Tab 259
5.6.4.Configuring Settings on the Alive Monitor Tab 259
5.6.5.Configuring Settings on the Performance Monitor tab 261
5.7. Configuring Model Properties (For a Virtual Machine Server) 263
5.7.1.Configuring Settings on the General Tab 264
5.7.2.Configuring Settings on the Storage Tab 265
5.7.3.Configuring Settings on the Software Tab 265
5.7.4.Configuring Settings on the VM Optimized Placement Tab 265
5.7.5.Configuring Settings on the Datastore Tab 265
5.7.6.Configuring Settings on the Virtual Network Tab 265
5.7.7.Configuring Settings on the Alive Monitor Tab 267
5.7.8.Configuring Settings on the Performance Monitor tab 268
5.8. Configuring the Host Setting 269
5.8.1.Configuring Settings on the General Tab 269
5.8.2.Configuring Settings on the Network Tab 270
5.8.3.Configuring Settings on the Storage Tab (if the Model Type is Physical or VM Server) 271
5.8.4.Configuring Settings on the Software Tab 276
5.8.5.Configuring Settings on the Machine Profile Tab (if the Model Type is Physical or VM Server) 278
5.8.6.Configuring Settings on the Machine Profile Tab (if the Model Type is VM) 279
5.8.7.Configuring Settings on the Host Profile Tab (Windows Server) 280
5.8.8.Configuring Settings on the Host Profile Tab (Linux) 280
5.8.9.Configuring Settings on the Host Profile Tab (Windows Client) 280
5.8.10.Configuring Settings on the Datastore Tab (if the Model Type is VM Server) 280
5.8.11.Configuring Settings on the Alive Monitor Tab 280
5.9. Configuring a Resource Pool 283
5.9.1.Adding a Resource Pool 283
5.9.2.Dividing a Resource Pool into a Sub-Pool 284
5.9.3.Configuring a Datastore in a Resource Pool 286
5.9.4.Setting Up LUN in the Resource Pool 288
5.9.5.Configuring a Logical Network in a Resource Pool 289

6. Settings to Manage and Operate Virtual Environment 293

6.1. Creating a Virtual Machine 294
6.1.1.About How to Create a Virtual Machine 294
6.1.2.Creating a Virtual Machine Using the Full Clone Method 296
6.1.3.Creating a Virtual Machine Using the HW Profile Clone Method 297
6.1.4.Creating a Virtual Machine Using the Differential Clone Method 299
6.1.5.Creating a Virtual Machine Using the Disk Clone Method 303
6.1.6.Creating a Sysprep Execution Scenario 306
6.2. Creating a Template 308
6.2.1.Creating a Full Clone Template 308
6.2.2.Creating a HW Profile Clone Template 310
6.2.3.Creating a Differential Clone Template 311
6.2.4.Creating a Disk Clone Template 315

6.2.5.Creating a Snapshot ... 317
6.2.6.Reverting a Snapshot ... 318
6.2.7.Deleting a Snapshot ... 319
6.2.8.How to Use the Template Created in the Virtual Environment in SigmaSystemCenter ... 320
6.3. Configuring to Use the VM Optimized Placement Feature ... 321
6.3.1.Managing a Virtual Machine Server in a Group ... 321
6.3.2.Configuring the VM Server Model ... 321
6.3.3.Monitoring the Performance Data ... 323
6.3.4.Enabling the Power Saving ... 323

7. Operations for Managing a Machine in the Operations View ... 325

7.1. Adding a Machine to a Pool ... 326
7.2. Activating a Machine in a Group ... 327
7.2.1.Registering a Master Machine ... 327
7.2.2.Allocating a Resource to a Host ... 329
7.2.3.Creating a Virtual Machine and Activating the Machine in a Group ... 332
7.3. Release Resource ... 335
7.4. Delete Virtual Machine ... 337
7.5. Scale Out ... 339
7.6. Scale In ... 341
7.7. Changing the Usage of a Machine ... 343
7.8. Replacing a Machine ... 345
7.9. Reconfiguring a Virtual Machine ... 348
7.10. Distributing Specified Software to a Machine ... 351
7.11. Redistributing Software ... 353
7.12. Change Configuration ... 355

8. Operations for Managing a Machine in the Virtual View ... 359

8.1. Moving a Virtual Machine Server ... 360
8.2. Creating a Virtual Machine in the Virtual View ... 361
8.2.1.Creating a Virtual Machine with a Full Clone Template ... 361
8.2.2.Creating a Clone of a Virtual Machine ... 362
8.3. Editing a Virtual Machine ... 364
8.4. Moving a Virtual Machine ... 366
8.5. Shifting the Operation of ESXi ... 371
8.5.1.Shifting the Environment From Standalone to vCenter Server ... 371
8.5.2.Shifting the Environment From vCenter Server to Standalone ... 372
8.5.3.Operations After Failing Over in the Standalone ESXi Environment ... 373

9. Maintenance ... 377

9.1. Operations for Maintenance ... 378
9.1.1.Starting, Restarting, and Stopping SystemProvisioning ... 378
9.1.2.Starting, Restarting, Shutting Down, or Suspending a Machine ... 378
9.1.3.Setting in the Maintenance Mode and Releasing the Maintenance Mode ... 381
9.1.4.Clearing the Hardware Status of a Machine From Faulted to Ready ... 382
9.1.5.Resetting Job Result ... 383
9.1.6.Executing Maintenance Operations of a Machine ... 384
9.1.7.Changing a Group of a Host (for Virtual Groups Only) ... 385
9.1.8.Changing Disk Volume Configuration ... 387
9.1.9.Backing up and Restoring a Machine ... 389
9.1.10.Distributing an Additional Application and Applying a Patch to a Machine ... 390
9.1.11.Confirming the Configuration Database Settings ... 393
9.2. Adding a Managed Machine After Starting Operation in SigmaSystemCenter ... 395
9.2.1.Adding a Physical Machine ... 395
9.2.2.Adding a Virtual Machine Server ... 395
9.2.3.Registering a Created Virtual Machine ... 397
9.3. Working with Service Portal ... 399
9.3.1.How to Create a Virtual Machine on the Portal View ... 401
9.3.2.How to Edit the Service Profile ... 403
9.4. Connecting to a Console ... 404
9.4.1.Connecting to a Serial Console of a Physical Machine ... 404

9.4.2.Connecting to a Console of a Virtual Machine on VMware 407
9.4.3.Connecting to a Console of a Virtual Machine on XenServer, KVM or Hyper-V....410
9.4.4.Displaying a Screenshot of a Virtual Machine Console....416
9.5. Managing a Machine Using a Smart Group....418
9.5.1.Adding a Smart Group....420
9.6. Machine Management with Tag Cloud....422
9.6.1.Narrowing Down with Tag Cloud....422
9.6.2.Colors and Size of Characters of Tags....423
9.6.3. Tab....424
9.7. Checking Performance Status....425
9.7.1.Comparing Managed Machines....425
9.7.2.Comparing Performance Indicators....427
9.7.3.Comparing Groups....429
9.7.4.Exporting the Performance Data to a File....431
9.8. Checking Failed Status....432
9.8.1.Dashboard....432
9.8.2.Event Viewer....433
9.8.3.Checking Failed Status of a Managed Machine....433
9.8.4.Checking Sensor Status on a Managed Machine....435
9.8.5.Checking Job Execution Status....437
9.8.6.Checking Events....438
9.9. Viewing IPMI Information....440
9.9.1.SEL Tab....441
9.9.2.Sensor Tab....442
9.10. Replacing Hardware....444
9.10.1.Replacing a Machine or a Motherboard....444
9.10.2.Replacing a Primary NIC....448
9.10.3.Replacing a NIC Other Than a Primary NIC....450
9.10.4.Replacing an HBA....452
9.10.5.Replacing a Disk....455
9.10.6.Replacing a Device on an ESX Other Than a Hard Disk....456
9.10.7.Replacing a Device Other Than a Hard Disk on XenServer....457
9.11. Extracting Logs....458
9.11.1.Extracting SystemProvisioning Log....458
9.11.2.Extracting System Monitor - Performance Monitoring Services Log....459
9.11.3.Extracting DPM Log....459
9.11.4.Extracting NEC ESMPRO Manager Log....461
9.12. Changing IP Address of a Management Server....462
9.12.1.Before Changing IP Address of a Management Server....462
9.12.2.Changing Settings on DeploymentManager....462
9.12.3.Changing Settings on SystemProvisioning....463
9.12.4.Changing Settings on System Monitor - Performance Monitoring Services....464
9.12.5.Changing Settings on NEC ESMPRO Manager and NEC ESMPRO Agent....465

10. Backup and Restoration....469

10.1. Backup Plan....470
10.1.1.Management Server....470
10.1.2.Managed Machine....470
10.2. Backing up and Restoring SystemProvisioning....471
10.2.1.Backing up SystemProvisioning....471
10.2.2.Restoring SystemProvisioning....472
10.3. Backing up and Restoring System Monitor - Performance Monitoring Services....474
10.3.1.Backing up System Monitor - Performance Monitoring Services....474
10.3.2.Restoring System Monitor - Performance Monitoring Services....475
10.4. Backing up and Restoring DPM....477
10.4.1.Backing up Data of DPM When Configuring the Initial Setup or Changing the Configuration....477
10.4.2.Backing up Data Updated When Operating DPM....478
10.4.3.Restoring DPM....480
10.5. Backing up and Restoring NEC ESMPRO Manager....483
10.5.1.Backing up NEC ESMPRO Manager....483
10.5.2.Restoring NEC ESMPRO Manager....486

Appendix A Monitoring Profile....491

Appendix B Revision History 495
Appendix C License Information 497

Preface

How to Use This Manual

The *SigmaSystemCenter Configuration Guide* is intended for system administrators who configure the whole system after installation and who operate and maintain the system after the configuration. Actual operational flow is used to explain the process from the configuration after installation to the operating procedures. This manual also explains the maintenance process.

Manual Organization

Part I Advance Preparation for SigmaSystemCenter

1 "Preliminary Knowledge for Setting up SigmaSystemCenter": Explains the outline of SigmaSystemCenter set up and the Web Console, which a user is expected to already know before setting up the system.
2 "Initial Operations and Environment Setting of SigmaSystemCenter": Explains the initial setting and environment setting of SigmaSystemCenter.
3 "Settings of Related Products": Explains the advanced configuration of related products used by SigmaSystemCenter.

Part II Start Operation in SigmaSystemCenter

4 "Registering Resources to SigmaSystemCenter": Explains the procedure to register related products to SigmaSystemCenter.
5 "Creating an Operation Group": Explains the operations to create an operation group in SigmaSystemCenter.
6 "Settings to Manage and Operate Virtual Environment": Explains how to manage and operate a virtual environment in SigmaSystemCenter.
7 "Operations for Managing a Machine in the Operations View": Explains the operations to manage a machine in the Operations view in SigmaSystemCenter.
8 "Operations for Managing a Machine in the Virtual View": Explains the operations to manage a machine in the Virtual view.

Part III Maintenance

9 "Maintenance": Explains the necessary information for the maintenance of SigmaSystemCenter.
10 "Backup and Restoration": Explains the methods of backup and restore during operation of SigmaSystemCenter.

Appendices

Appendix A "Monitoring Profile"
Appendix B "Revision History"
Appendix C "License Information"

SigmaSystemCenter Manuals

The manuals of SigmaSystemCenter are configured for the various products and components as follows.
In this manual, each of the following manuals is described as "How Manuals Are Called in This Manual."

Products or Components	Manuals	How Manuals Are Called in This Manual
SigmaSystemCenter 3.1	SigmaSystemCenter 3.1 First Step Guide	SigmaSystemCenter First Step Guide
	SigmaSystemCenter 3.1 Installation Guide	SigmaSystemCenter Installation Guide
	SigmaSystemCenter 3.1 Configuration Guide	SigmaSystemCenter Configuration Guide
	SigmaSystemCenter 3.1 Reference Guide	SigmaSystemCenter Reference Guide
NEC ESMPRO Manager 5.52	NEC ESMPRO Manager Ver.5.5 Installation Guide	NEC ESMPRO Manager Installation Guide
DeploymentManager 6.1	DeploymentManager Ver6.1 First Step Guide	DeploymentManager First Step Guide
	DeploymentManager Ver6.1 Installation Guide	DeploymentManager Installation Guide
	DeploymentManager Ver6.1 Operation Guide	DeploymentManager Operation Guide
	DeploymentManager Ver6.1 Reference Guide	DeploymentManager Reference Guide
System Monitor - Performance Monitoring Services 5.1	System Monitor - Performance Monitoring Services 5.1 User's Guide	System Monitor - Performance Monitoring Services User's Guide
	SigmaSystemCenter ssc Command Reference	ssc Command Reference

Reference: All the latest SigmaSystemCenter manuals are available in the following URL.

http://www.nec.com/sigmasystemcenter/en/support/index.html

The information regarding product summary, installation, configuration, operation and maintenance of SigmaSystemCenter are included in the following four manuals. The purposes of the manuals are as follows.

SigmaSystemCenter First Step Guide
This manual is intended for users who use SigmaSystemCenter for the first time and explains the product summary, system design methods and operating environment.

SigmaSystemCenter Installation Guide
This manual is intended for system administrators who install, upgrade, or uninstall SigmaSystemCenter and explains how to.

SigmaSystemCenter Configuration Guide
This manual is intended for system administrators who configure the whole system after installation and who operate and maintain the system after the configuration. Actual operational flow is used to explain the process from the configuration after installation to the operating procedures. This manual also explains the maintenance process.

SigmaSystemCenter Reference Guide
This manual is intended for administrators of SigmaSystemCenter and explains its features and functionalities, the operational methods, information of maintenance and trouble shooting, and lists all the operating screens. This manual is a supplement to *SigmaSystemCenter Installation Guide* and *SigmaSystemCenter Configuration Guide*.

Document Conventions

In this manual, information that needs attention and references are described as follows:

Note: indicates caution notes, and supplementary explanation for functionalities, operations, and settings.

Reference: indicates why and where you should refer to.

In addition, this manual uses the following document conventions.

Convention	Used Item	Example
Bold font	Items that a user selects on a screen, short text input, screen names, short command-line commands, and command-line options	Type **Exit** and click **Enter**. **User License Confirmation** screen Use the **–prt** command. Use the ***/a*** option.
Italic font	Book or manual titles, and variable names	*Configuration Guide* `add GroupName`
Quotation marks	Chapter titles and default values	See Chapter 9, "Add a Computer."
Monospace font (`courier new`)	Long text inputs, messages and command-line commands	Type the following text: `Confidential–Class B`

Part I Advance Preparation for SigmaSystemCenter

This section describes preliminary knowledge for SigmaSystemCenter, the initial setting after the installation of SigmaSystemCenter, and settings of related products.

- 1 Preliminary Knowledge for Setting up SigmaSystemCenter
- 2 Initial Operations and Environment Setting of SigmaSystemCenter
- 3 Settings of Related Products

1. Preliminary Knowledge for Setting up SigmaSystemCenter

This chapter explains the outline of SigmaSystemCenter set up and the Web Console for a user who uses SigmaSystemCenter for the first time.

This chapter contains the following sections:

- 1.1 Machine Management 4
- 1.2 Understanding Basic Operations on the Web Console 21

1.1. Machine Management

1.1.1. Managing Machine Operation with SystemProvisioning

The flow of operating a machine in SystemProvisioning is as follows:

1. Registering a subsystem to SystemProvisioning

Register a compatible product for managing the hardware which is the management target of SystemProvisioning as a subsystem.

2. Registering resources to SystemProvisioning

Collect resources from the subsystem. Then, in the Resource view, register managed machines, storage, and network devices which are the management targets of SigmaSystemCenter.

3. Creating an operation group

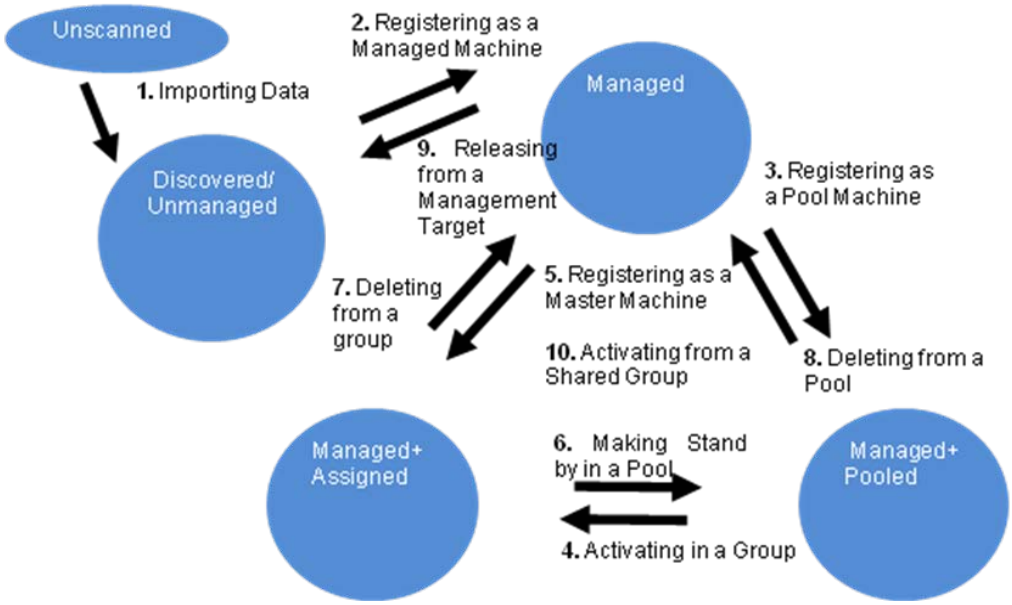
Configure the machine information of machines activated in the group and a policy which defines how to deal with a system failure on the Group Property Setting.

4. Activating the machines in the operation group

SigmaSystemCenter configures the storage and network setting to managed machines, and sets up the managed machines. For a virtual environment, SigmaSystemCenter creates a new virtual machine. After that, SigmaSystemCenter starts managing of them.

1.1.2. Transition of Machine Status

This subsection explains the transition of the managed status of a managed machine.


Unscanned
1. Importing Data
2. Registering as a Managed Machine
Managed
9. Releasing from a Management Target
Discovered/ Unmanaged
3. Registering as a Pool Machine
7. Deleting from a group
5. Registering as a Master Machine
10. Activating from a Shared Group
8. Deleting from a Pool
Managed+ Assigned
6. Making Stand by in a Pool
Managed+ Pooled
4. Activating in a Group

1. Importing machines managed in a subsystem

To manage machines in SystemProvisioning, import machines managed by DPM and virtualaization infrastructure products such as vCenter Server.

2. Registering a machine as a management target of SystemProvisioning

To take the machine in a management target of SystemProvisioning, register the machine as a managed machine from the Resource view on the Web Console.

The registered machine is managed as a managed machine.

3. Registering a machine as a pool machine

Register a managed machine to a group pool as a standby machine for the group.

At this timing, SystemProvisioning executes shut down to the machine. The registered machine is managed as a pool machine.

4. Activating a pool machine in a group

Activate a machine by allocating the machine resource to a host. A machine can be activated with the configuration changes, such as Allocate Resource, Replace Machine, and Change Machine Usage. At this timing, SystemProvisioning starts up the machine. The activated machine is managed as a host.

5. Registering as a master machine

Activate a machine of a managed machine that does not belong to any group, which is in the status of the procedure 2, "Registering a machine as a management target of SystemProvisioning" and 3, "Registering a machine as a pool machine." At this timing, SystemProvisioning starts up the machine. The activated machine becomes the same status of after the procedure 4, "Activating a pool machine in a group."

6. Making an active machine standby in a pool

Make an active machine in a group standby in a pool. A machine can be made to stand by with the configuration changes, such as Release Resource and Replace Machine. After this operation, all the settings applied when allocated machine are released. And the host is managed as a pool machine. At the same timing, SystemProvisioning executes shut down to the machine. The machine becomes the same status of after the procedure 3, "Registering a machine as a pool machine."

7. Deleting an active machine from the group

Delete an active machine from the group. A machine can be deleted with the configuration changes, such as Replace Machine and Release Resource. The machine after this operation is managed as a shared pool machine.

When executing Release Resource, it can be selected whether to keep or release all the settings those were applied to the machine when Allocate Machine was executed.

If the machine is not registered to any other group pool, the machine will be in the status of SystemProvisioning management target but not being registered to any group. At this timing, SystemProvisioning executes shut down to the machine. The deleted machine becomes the same status of after the procedure 2, "Registering a machine as a management target of SystemProvisioning."

8. Deleting a pool machine from the group

Change the status of a pool machine to not belonging to any group. If the machine is not registered to other group pool, the machine will be in the status of SystemProvisioning management target but not being registered to any group. The deleted machine becomes the same status of after the procedure 2, "Registering a machine as a management target of SystemProvisioning."

9. Deleting a machine from the management target of SystemProvisioning

Delete a machine from the management target of SystemProvisioning. This operation deletes the machine from the configuration management target.

The deleted machine becomes the same status of after the procedure 1, "Importing machines managed in a subsystem."

10. Using a shared pool machine

If specific conditions are met when changing a configuration of a machine, with activating a machine or Replace Machine, you can activate a managed machine that does not belong to any group in a group.

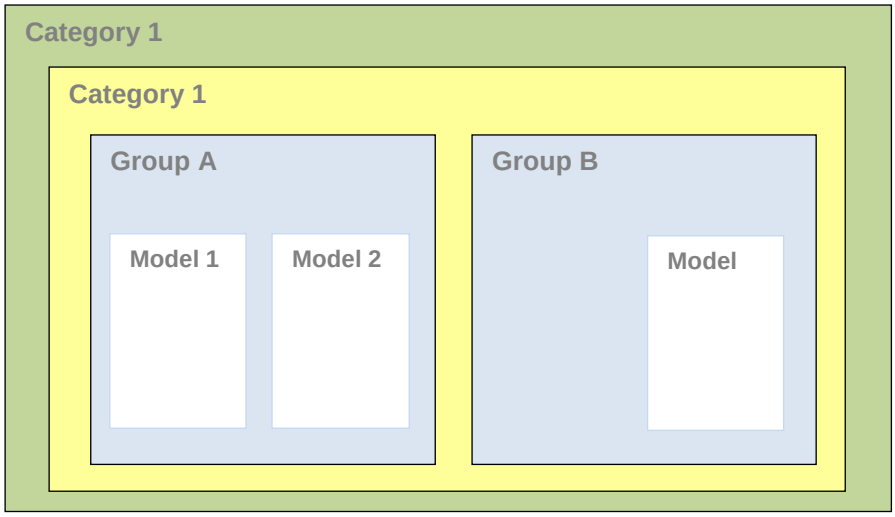
The activated machine is managed as a host.

1.1.3. Group / Model / Host

SystemProvisioning manages multiple machines to be used for the same use as a group. By this group management, troublesome operations that used to be needed for each machine can be done once you execute the operation to a group once, so that the total management cost can be reduced.

A group consists of categories, groups, and models hierarchically. A category can have multiple layers. By using a layered group, the management of a large scale system environment becomes relatively easier.

Multiple models can be registered in one group. If it is necessary to execute various configuration changes according to difference of machine specifications, register multiple models.



- Model

  SystemProvisioning executes the changing configuration process that is suitable to each model type that comes from difference of machine type, such as a physical machine or virtual machine.

  There are three types of models, as follows. You can register only one type of models to a group.

- Physical for physical machines (excluding virtual machine servers)

  For this type of machines, standard configuration changes are executed, including software distribution or changing configuration of VLAN, load balancers, and storage.

- VM for virtual machines

  For this type of machines, configuration changes for a virtual machine are executed, including not only software distribution, but also changing configuration of virtual networks to which virtual machines are connected. Changing configuration of VLAN, load balancers, and storage is not executed.

- VM Server for virtual machine servers

  For this type of machines, configuration changes for a virtual machine server are executed, including software distribution and changing configuration of VLAN, load balancers, and storage, as well as virtual machine control, such as VM Optimized Placement.

◆ Host

The information to be assigned to a running machine, such as a host name and IP address, is managed as Host Setting. The necessary number of hosts is the same as the number of machines that run at the group.

1.1.4. Software Distribution

It is called *Software Distribution* that SystemProvisioning installs OS and applications into a managed machine while executing a series of provisioning towards the managed machine. SystemProvisioning distributes the following three types of software according to how to define software to distribute.

◆ Scenario

The setting about backup / restore and installation of OS and applications of DeploymentManager is called *scenario*.

A scenario is composed of an image file path and the setting information such as options while executing the processing. DeploymentManager treats backup images, patches to install, and applications which are the targets of management as image files.

◆ Template

This is a configuration file used when creating a virtual machine. Templates that you can use from SystemProvisioning are as follows:

- Full Clone template
- HW Profile Clone template
- Differential Clone template

- Disk Clone template

Reference: For details of each template, see Subsection 2.2.2, "Templates" in *SigmaSystemCenter Overview Reference Guide*.

◆ Local Script

Local Script is used in configuration changes to execute a specific processing depending on the configuration or environment of the system. A local script can be executed on a SystemProvisioning management server at the timing of activating a machine or replacing machines.

Reference: For how to use a local script, see Section 1.4, "Local Scripts" in *SigmaSystemCenter Overview Reference Guide*.

Software can be registered to the Machine Property, Group Property, Host, and Model Property.

If distribution software is registered both to a group and a model, you can set up an environment, considering differences of drivers according to machine types and differences of specifications for applications in a group made for the same use.

If distribution software is registered both to a group and a model, the installation of distribution software to a machine is executed in the following order: distribution software registered to a model, distribution software registered to a group.

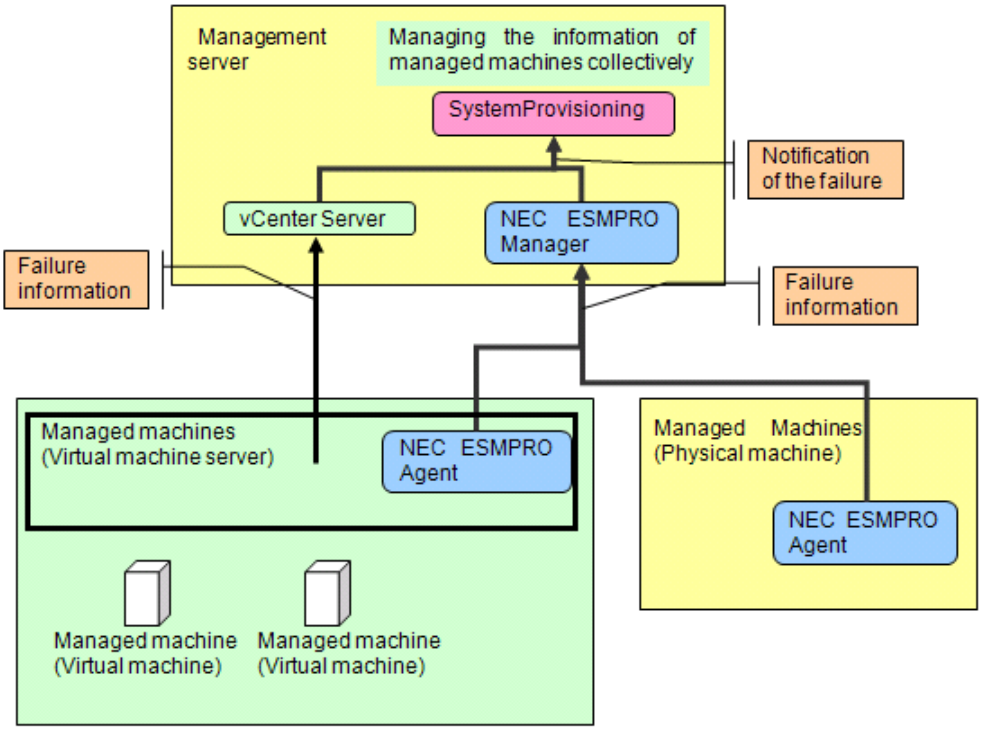
Reference: For the order of distributing software, see Subsection 1.2.7, "Distribution Order of Registered Software" in *SigmaSystemCenter Overview Reference Guide*.

1.1.5. Machine State and Failure Monitoring

SystemProvisioning can monitor the status, a failure, and recovery of managed machines by receiving an alert from components, such as NEC ESMPRO Manager, and vCenter Server.

A failure event detected in a managed machine is alerted to SystemProvisioning.

The following figure is a model of a failure alerted to SystemProvisioning through NEC ESMPRO Manager and vCenter Server.



When increase or decrease of loads occurs on CPU, memory, or disk of a managed machine, SystemProvisioning receives an alert from System Monitor - Performance Monitoring Services. System Monitor - Performance Monitoring Services collects and monitors the performance information of the machine. If System Monitor - Performance Monitoring Services detects an abnormality in performance such as exceeding the threshold, System Monitor - Performance Monitoring Services alerts SystemProvisioning to the performance failure event.

Reference: For details of System Monitor - Performance Monitoring Services, see *System Monitor - Performance Monitoring Services User's Guide*.

SystemProvisioning receives PET directly from BMC of a managed machine to detect an abnormality and failure related to hardware if Out-of-Band Management is enabled. Out-of-Band Management detects an event corresponding to the hardware failure events of NEC ESMPRO Manager and NEC ESMPRO Agent. However, Out-of-Band Management can detect these abnormalities and failures although the OS is inaccessible because Out-of-Band Management does not use services of the OS.

Reference: For details of failure events which SigmaSystemCenter can detect, see Section 1.2, "Events SigmaSystemCenter Can Detect" in *SigmaSystemCenter Data Reference Guide.*

1.1.6. Failure Recovery With a Policy

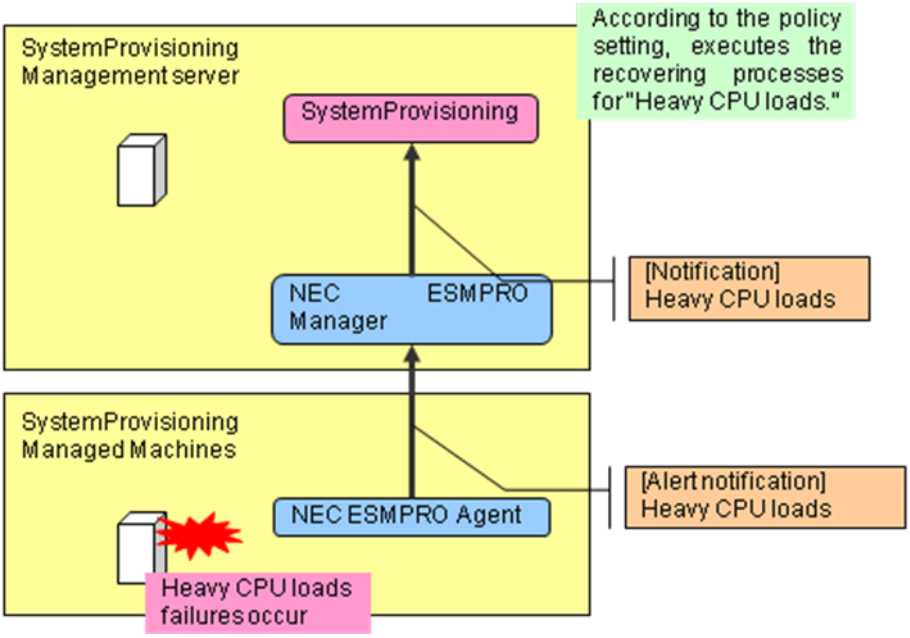
SigmaSystemCenter manages machines based on policies. The machine management based on policies defines multiple policy rules as a policy. When a defined policy is configured for a group, the defined policy becomes effective.

A policy rule is a setting of process defining "which process the system runs when a specific event occurs." SigmaSystemCenter configures policies by combining a recovery process (action) with event alerts. For example, SigmaSystemCenter configures the settings, such as "Add a machine to a group if a high CPU load error is received from NEC ESMPRO Manager."

SigmaSystemCenter offers multiple policy templates (a Standard Policy) with standard Event Handler Settings configured in advance. You can use the policy templates with or without modification.

Reference: For the details of event monitoring and policy, see Section 1.1, "Event Monitoring and Policy" in *SigmaSystemCenter Data Reference Guide*.

The following is an example of actions from failure occurrence to execution of policy setting process.



1. A high CPU load error is generated.
2. NEC ESMPRO Agent sends alert of a high CPU load error to NEC ESMPRO Manager.
3. NEC ESMPRO Manager notifies to SystemProvisioning.
4. SystemProvisioning executes a coping process with the high CPU load error according to a policy set in a group.

In addition, SigmaSystemCenter provides functionalities of notifying a sent alert by e-mail and registering an alert to the Event Log.

The Policy Property Settings provide a functionality that suppresses error events. This functionality is for the case that an error event and the error recovery event occur in a short period of time. After detecting a specific error event, this functionality waits the occurrence of the error recovery event in a certain period of time, and executes the pre-configured action only if the error recovery event does not occur in the waiting time.

For example, the machine access error that is generated during the normal system reboot process can be suppressed.

Reference: For the events that can be suppressed, see Subsection 1.4.2, "Suppression of Action Execution (Suppression of Error Event)" in *SigmaSystemCenter Data Reference Guide*.

1.1.7. Controlling Access with a Role

Permission for seeing pieces of information and executing operations of SigmaSystemCenter can be granted for a user according to which role is assigned to the user. Create a role to which an authority is configured and assign it to a user.

The following roles are prepared by default. Users with authority of Administrator, Operator, or Observer can be created by assigning the roles to users.

Administrator	Permitted to execute all operations including configuring and changing the setting of SigmaSystemCenter, and, starting and stopping machines.
Operator	Not permitted to configure or change the setting of SigmaSystemCenter, but permitted to operate managed machines such as start and stop.
Observer	Not permitted to configure or change the setting of SigmaSystemCenter, or operate managed machines such as start and stop, either. Only permitted to see the information such as activated status of machines.

In addition to the above roles, original roles can be created; for example, an Administrator who manages a specific operation category or an Operator who can access to only the Operations view.

Reference: For details of users and roles, see Section 1.1, "User and Role" in *SigmaSystemCenter Overview Reference Guide*.

1.1.8. What is a Pool Machine?

When a failure occurs, Failure Recovery (N+1 recovery) processing replaces the failure machine with a spare machine to recover the operation. This spare machine is called a *pool machine*.

SystemProvisioning can use a machine registered as a management target in the Resource view as a pool machine. If the Add Machine to Pool is executed to a machine in the group, the machine is added to the group pool.

Usage examples of pool machine in SystemProvisioning are as follows:

- Allocate Machine / Scale Out

  SystemProvisioning distributes software to the pool machine and activates the pool machine at the group.

- Replace Machine

  SystemProvisioning replaces a failure machine with the pool machine to recover.

- Change Machine Usage

  SystemProvisioning stops a machine activated in Group A and activates the machine in Group B. For the operation of Change Machine Usage, the machine to change its usage must be registered to a new group (Group B in this case) in advance.

Furthermore, it can be specified whether to use only a pool machine registered to the group pool or the other machines not registered to the group pool in a situation when any available machine does not exist in the group pool. This specification can be configured on the Machine Pool Setting on the Group Property Setting, and appears under Base Information of the group.

The conditions for using a machine not registered to a group are as follows:

- Permitted to use a machine not registered to the group pool on the Group Property Setting.
- Any available machine does not exist in the group pool.
- The pool machine is already registered as a management target of DPM and in status which software can be distributed.

For a virtual machine, only a virtual machine on the virtual machine server belonging to the resource pool is available if the resource pool is specified.

For a virtual machine server, a machine in which virtual infrastructure software is installed and is already configured as a virtual machine server is not the target of SAN Boot replacing.

Note:

▪ To specify the same model as a machine activated in the group, the model name (resource property) of the machine activated and that of the pool machine must be the same.

▪ If the Auto update model name check box is selected on the Machine Property Setting of the resource, SystemProvisioning collects information from subsystems and updates the model name automatically.

1.1.9. Machine Status

The statuses of each managed machine are displayed in the general display and detailed information window of machines and hosts. This information about the statuses helps you to understand running status, failure occurrence, power status or action executing for each machine.

SystemProvisioning displays following statuses.

- Summary Status

  Summary Status is the summarized information about machine management, hardware status and executing status. You can view the general information of the machine such as how the machine is managed, which action is executed or whether hardware failure occurs or not.

Status	Description
Normal	The machine has no error.
Abort **Faulted**	The machine is stopped because a severe error occurred on the machine.

Status	Description
Degraded	The machine is running although an error, such as degeneration, occurred on a partial function.
In-process	An operation, such as a configuration change, to the machine is being executed.
Maintenance	The machine is set in Maintenance Mode.
-	The machine is standing by in the standby stage before activating in a group.
Discovered	SystemProvisioning recognizes the machine, but the machine is not set as a management target.

Note:

・If multiple phenomenon of Abort, Faulted, or Degraded occurs, the multiple statuses are displayed. (E.g. (Abort, Faulted), (Abort, Degraded)) In addition to the above status, if a resource is in maintenance, the status of being maintained is displayed with an icon.

・Define only is displayed on the host that a machine is not allocated in a list of an operation group’s hosts.

◆ Power Status

You can view the power status of the machine.

Status	Description
On	The managed machine is ON. (This status includes the status of machine's being started)
Off	The managed machine is OFF.
Suspend	The managed machine is suspended. (This status is displayed if the managed machine is a virtual machine.)
Running	OS of the managed machine is running properly. This status is displayed in the Power column in a list window. (The OS status is On,)
-	The power status of the managed machine is unknown.

Note:

・Even if the managed machine's power status is On, the power status is displayed as Off when the status of the managed machine cannot acquired from compatible software.

・If you operate a virtual machine in a "Suspend" status with operations, such as adding or moving the machine, make sure to resume "Suspend" status with a starting operation from the Web Console in advance.

If the power status of the virtual machine is in "Suspend", the machine may not operate normally due to the failure of the power operation.

- Running Status

  You can view the running status of the machine.

  When the machine is allocated to the host in the operation group with operations such as Allocate Machine and starts running, the running status is turned to On.

Status	Description
On	The machine is running in a group.
Off	The machine is not running in a group.

- Operating System Status

  You can view the running status of the OS which is installed on the machine.

Status	Description
On	The OS is operating properly.
Off	The OS is stopped due to shutdown.
-	The OS status of the managed machine is unknown.

- Hardware Status

  You can view whether the machine failure occurs or not.

  If the failure event for SystemProvisioning is alerted by NEC ESMPRO Manager or virtual infrastructures, the policy executes the action to set the status, and the hardware status is turned Faulted or Degraded.

  If the recovering event has occurred, the hardware status is turned to Ready by the action of the policy. You can also turn the hardware status to Ready by executing Clear Failure Status on the Web console.

Status	Description
Ready	The machine has no error.
Faulted	The machine is stopped because a severe error occurred on the machine.
Degraded	The machine is running although an error, such as degeneration, occurred on a partial function.
-	The hardware status is not managed.

  When you click **Details** next to Status, the hardware parts status is displayed.

- Execute Status

  You can view the action executing status of the machine.

  If the action has been executed in failure, it shows Abort.

  If the action is being executed, it shows In-process.

  If the action is not executed or the action has been executed correctly, it shows "-".

Status	Description
In-process	An operation, such as a configuration change, to the machine is being executed.
Abort	An operation, such as a configuration change, to the machine is aborted.
-	A configuration change is not being executed or executed actions are completed.

- Policy Status

  You can view whether the policy action corresponding to the event that has occurred on the machine can be executed.

  When the machine is allocated to the host in the group, it is turned to On. You can execute policy actions when the status is On.

  When the machine is removed from the host, it is turned to Off. You cannot execute policy actions when the status is Off.

  When the operation that turns power off is executed to the running machine in the group, it is turned to Partial. If the status is Partial, The actions to events whose event is categorized Machine inaccessible error in the Event Category are not executed so that unintended recovery process may not be executed by detecting Machine inaccessible error event. The Partial status is discarded when the machine is powered on, and the status is turned back to On.

Status	Description
On	If a policy is assigned to a received event, the policy is executed.
Off	A policy has executed already, and even though SystemProvisioning receives an event, any policy is not executed.
Partial	A policy has executed already. Power operations, such as starting and shutting down, are disabled and a policy action for power operations is not executed. When SystemProvisioning receives an event other than power operations, a policy is executed.

- Maintenance Status

  You can view the maintenance mode settings of the machine.

  Use the maintenance mode to prevent unintended actions from being executed for the machine during the machine maintenance. Enabling the maintenance mode restricts to execute policy actions, and exclude the machine from the target to be selected automatically during the action is being executed.

Status	Description
On	The machine is set in Maintenance Mode.
Off	The machine can be operated.

- Managed Status

  You can view the managed status by SystemProvisioning for the machine.

Status	Description
Managed	The machine can be operated.
Unmanaged	SystemProvisioning recognizes the machine, but the machine is not set as a management target.

1.1.10. Disk Volume Status

By clicking Storage in the System Resource tree on the Web console, Disk Volume List appears, and this allows you to view the status of the disk volume.

- Share Status

  Displays and manages the share status of a disk volume.

Status	Description
Shared	The disk volume is shared by multiple hosts.
Unshared	The disk volume is not shared. The disk volume can be set to the single host only.

- Usage Status

  Displays and manages the usage status of a disk volume.

Status	Description
Unused	The disk volume is not assigned to a host.
Used	The disk volume is assigned to a host.

Note: The disk volumes registered to the Storage tab in Group / Model / Host Setting are managed its usage status. If the disk volume is not registered to the Storage tab and if it is assigned by using a command, its usage status is displayed as "Unused."

1.1.11. Machine Types

The machine types displayed by SystemProvisioning are as follows:

Type	Description
Unitary	A machine that is managed in DPM Server.
VMware, VM Server	A virtual machine server in the VMware environment.
Xen, VM Server	A virtual machine server in the XenServer environment.
Hyper-V, VM Server	A virtual machine server in the Hyper-V environment.
KVM, KVM Server	A virtual machine server in the KVM environment.
VMware, Virtual Machine	A virtual machine in the VMware environment.
Xen, Virtual Machine	A virtual machine in the XenServer environment.
Hyper-V, Virtual Machine	A virtual machine in the Hyper-V environment.
KVM, Virtual Machine	A virtual machine in the KVM environment.
Unknown	A machine whose type becomes unknown due to causes such as deletion of a subsystem.

If the virtual machine server is registered to DPM, the machine type is displayed with all subsystem names:

E.g.) Unitary, VMware, VMServer

1.1.12. Priority Value

Priority values are used when SystemProvisioning automatically selects a target group for policy control and command execution.

If a target group or model is selected for the following operations, a group or model with higher priority; that is with a smaller priority value, is selected in specified groups or models.

- Add Machine
- Change Machine Usage
- Starting a machine

In addition, when a target group or model is automatically selected in the following operations, the group or model with lower priority (with a bigger priority value) is selected in specified groups or models.

- Deleting a machine
- Change Machine Usage
- Stopping a machine

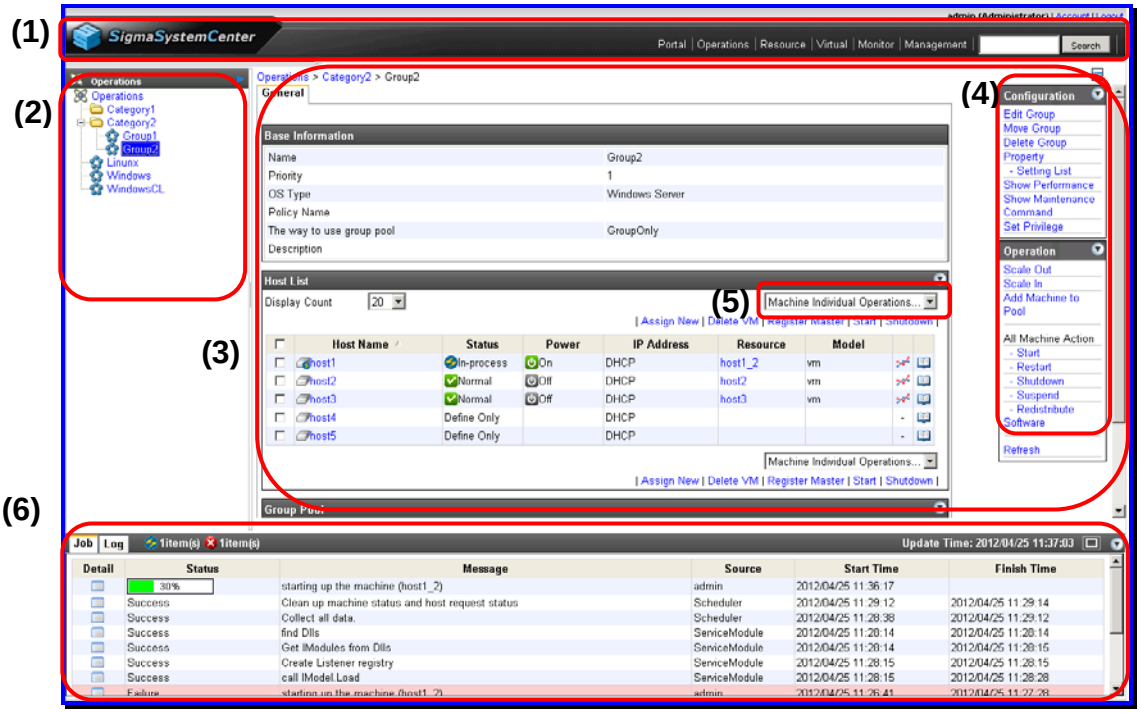
1.2. Understanding Basic Operations on the Web Console

This section provides basic knowledge of the SystemProvisioning Web Console.

1.2.1. Operations by the Web Console

Using the Web Console, you can perform various operations, such as operating managed machines and managing groups

The Web Console is composed of the following five elements.



(1) Title bar

On the Web Console, the Title bar is displayed all the time.

The Title bar is composed of the Search function, Main menu, and Account management functionality.

- Search

  You can search machines from here. See Subsection 1.2.6, "Search" for details.

- Main menu

  By clicking these menus, you can change the view.

- Account management functionality

  You can change the password and log out.

(2) Tree view

By clicking the main menu, you can change the Tree view.

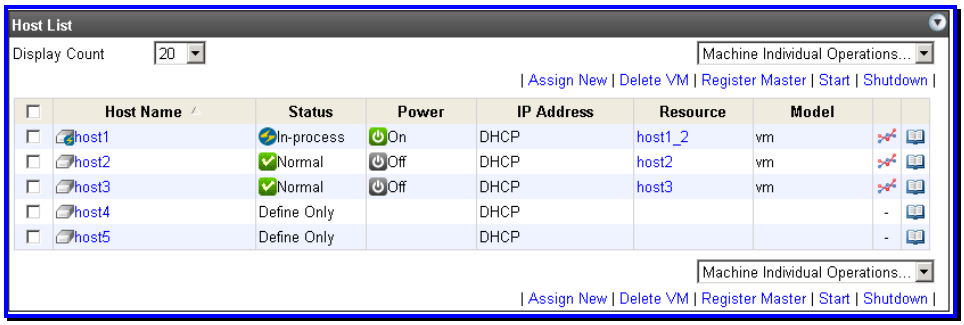
By clicking icons in the Tree view, detailed information, the Configuration menu, and Operation menu are displayed in the Main Window and you can precede operations from there.

(3) Main window

This is the main window of SystemProvisioning.

- Group box

  Group box refers to the box to display details in the list format on the Main Window.



(4) Configuration menu and Operation menu

These menus are for the configuration such as making groups and the execution of actions such as starting machines. The menus displayed here change by selecting the items on the tree view. The operations on Operation menu will be executed to all the resources in the view selected in the tree view.

(5) Action menu

The Action menu is the menu(s) that is located under a group box or contained in a drop-down combo box. This menu will be executed to all the selected resources in the group box.

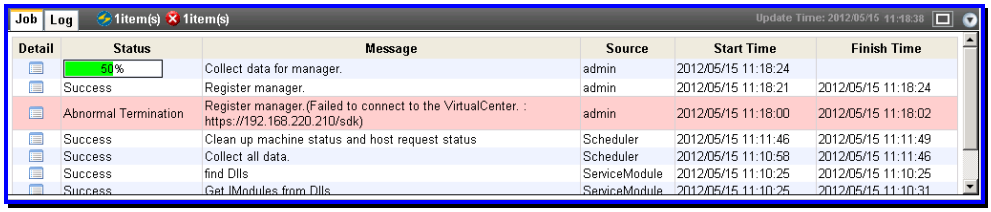
Select the check box(es) of the target resource(s) in the group box list displayed on the Main Window beforehand and then execute the Action menu.

(6) Message window

The latest information of jobs and logs is displayed on this window.

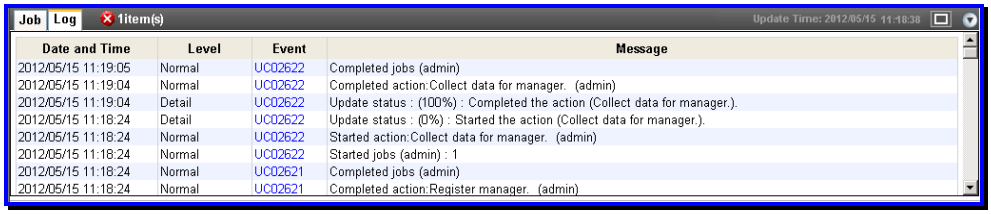
- Job window

  The Job window displays the information of the jobs performed within 1 hour up to 100.



- Log window

  The Log window displays the latest log information up to 100.



1.2.2. Views

SigmaSystemCenter provides six types of views. You can switch views by clicking menus on the Title bar. Purposes of each view are as follows:

◆ Portal view

This view is for cloud users to operate a private cloud environment with SigmaSystemCenter. This view appears when a virtual infrastructure, such as vCenter Server, is registered as a subsystem.

◆ Operations view

This view is a main view for operations in SigmaSystemCenter.

◆ Resource view

In this view, you can register and manage resources, such as machines, storage, network devices, and software.

- Virtual view

  This view shows you configuration of your virtual environment that SigmaSystemCenter manages. Also, you can execute operations that are only for a virtual environment, such as creating and moving a virtual machine.

- Monitor view

  In this view, you can monitor state of your managed resources or executions state of Jobs on Dashboard. In addition, you can refer to operation logs, job histories and event histories. This view shows you summary information of managed machines on multiple SystemProvisioning management servers.

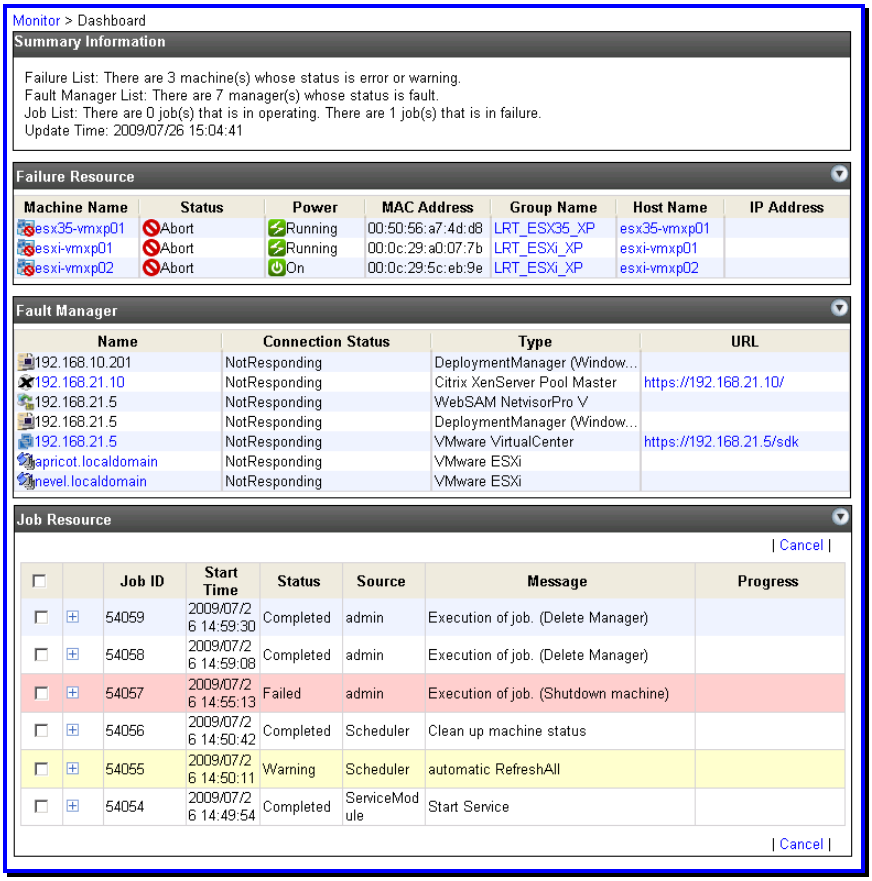
- Management view

  In this view, you can configure settings required to use SigmaSystemCenter, such as registering license keys, adding users, and configuring environmental settings. In addition, you can register operation policies or subsystems.

1.2.3. Dashboard

You can monitor state of your managed resources or current executions state of Jobs.

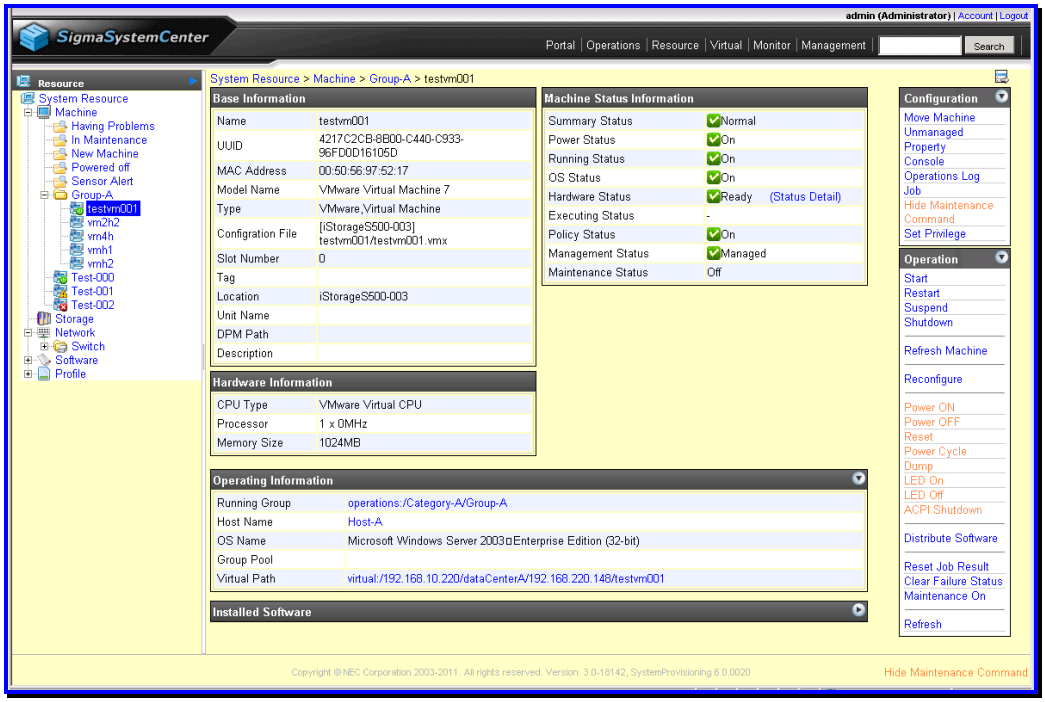
Click the Dashboard in the Monitor tree to display the Dashboard on the Main Window. The Dashboard is updated periodically, by five seconds by default. Job result is displayed for specified period, for 60 minutes by default after the Job is completed, succeeded or failed. For setting the update interval and Job result display period, see Subsection 2.4.8, "Changing the Setting of Auto-Update of Screens."


Monitor > Dashboard
Summary Information
Failure List: There are 3 machine(s) whose status is error or warning.
Fault Manager List: There are 7 manager(s) whose status is fault.
Job List: There are 0 job(s) that is in operating. There are 1 job(s) that is in failure.
Update Time: 2009/07/26 15:04:41
Failure Resource
Machine Name | Status | Power | MAC Address | Group Name | Host Name | IP Address
esx35-vmxp01 | Abort | Running | 00:50:56:a7:4d:d8 | LRT_ESX35_XP | esx35-vmxp01
esxi-vmxp01 | Abort | Running | 00:0c:29:a0:07:7b | LRT_ESXi_XP | esxi-vmxp01
esxi-vmxp02 | Abort | On | 00:0c:29:5c:eb:9e | LRT_ESXi_XP | esxi-vmxp02
Fault Manager
Name | Connection Status | Type | URL
192.168.10.201 | NotResponding | DeploymentManager (Window...
192.168.21.10 | NotResponding | Citrix XenServer Pool Master | https://192.168.21.10/
192.168.21.5 | NotResponding | WebSAM NetvisorPro V
192.168.21.5 | NotResponding | DeploymentManager (Window...
192.168.21.5 | NotResponding | VMware VirtualCenter | https://192.168.21.5/sdk
apricot.localdomain | NotResponding | VMware ESXi
nevel.localdomain | NotResponding | VMware ESXi
Job Resource
| Cancel |
Job ID | Start Time | Status | Source | Message | Progress
54059 | 2009/07/26 14:59:30 | Completed | admin | Execution of job. (Delete Manager)
54058 | 2009/07/26 14:59:08 | Completed | admin | Execution of job. (Delete Manager)
54057 | 2009/07/26 14:55:13 | Failed | admin | Execution of job. (Shutdown machine)
54056 | 2009/07/26 14:50:42 | Completed | Scheduler | Clean up machine status
54055 | 2009/07/26 14:50:11 | Warning | Scheduler | automatic RefreshAll
54054 | 2009/07/26 14:49:54 | Completed | ServiceModule | Start Service
| Cancel |

Note: To check detailed information of an error of a failed resource or job that ends with an error, check the Operation Logs window or Job window. For more detailed information of the Dashboard or how to check an error, see Subsection 9.8.1, "Dashboard."

1.2.4. Maintenance Operations

For maintenance operations, such as Power ON and Power OFF to a management machine, SigmaSystemCenter provides a maintenance menu. The maintenance operations are displayed by clicking Show Maintenance Command on the Operation menu in the Operations view or Resource view. Since these operations need special attention, the back screen of the window turns yellow when you select one of these operations. To go back to the normal operation, click Hide Maintenance Command on the Configuration menu or at the lower right of the window.



Reference: For more details of the maintenance operations, see Subsection 9.1.6, "Executing Maintenance Operations of a Machine" or 9.1.7, "Changing a Group of a Host (for Virtual Groups Only)."

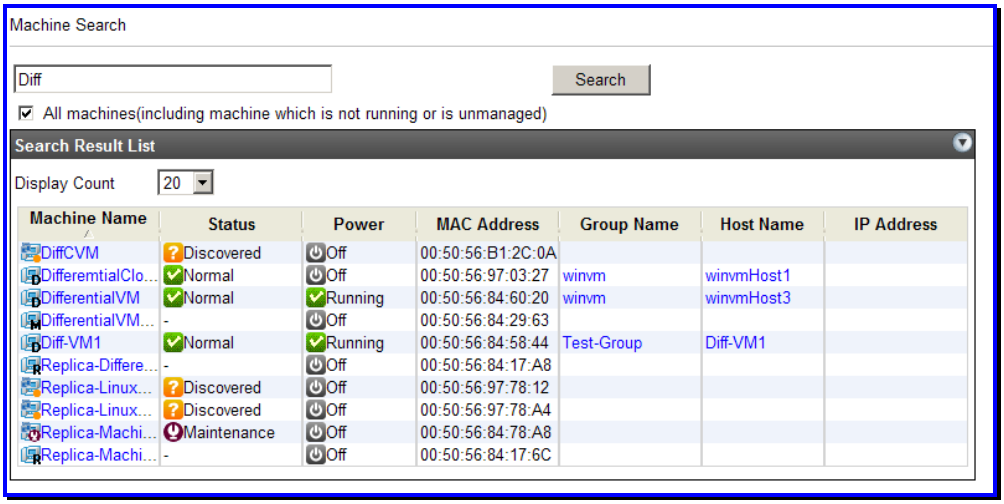
1.2.5. Enable Popup Message

SigmaSystemCenter notices you a completed job by popup message displayed at the lower right of the Main Window. To enable or disable the pop-up function, change the setting on the Display tab of Environment Setting. For more details, see Subsection 2.4.8, "Changing the Setting of Auto-Update of Screens."

1.2.6. Search

Searches for a machine.

To search a machine, type a keyword in the text box on the title bar and click **Search**.



You can specify the following keywords as a key word for searching for a machine.

Key Word for Search		**Example**
Machine Name or Host Name		OLIVE12
MAC Address		00:00:4C:71:CE:17
UUID		50281E7B-4547-6463-07CE-F10EFAFA7201
Summary Status		NORMAL (A machine running normally) ERROR (A machine on which an error occurred) WARNING (A machine in a Warning status) MAINTENANCE (A machine which is set to Maintenance Mode) EXECUTE (A machine in process)
IP Address	Specify one IP address	192.168.10.1
	Specify a range *1	192.168.10.1 192.168.10.100

*1 To search for an IP address in the specific range, enter two IP addresses separating them into a start IP addresses and an end IP address with one blank space.

2. Initial Operations and Environment Setting of SigmaSystemCenter

This chapter explains the initial operations and environment setting of SigmaSystemCenter.

This chapter contains the following sections:

- 2.1 Starting the Web Console and Logging In to SigmaSystemCenter..... 30
- 2.2 Registering License Keys 33
- 2.3 Adding a SystemProvisioning User 35
- 2.4 Configuring the Environment 36

2.1. Starting the Web Console and Logging In to SigmaSystemCenter

To operate the Web Console, you need to start and log in to the Web Console.

2.1.1. Starting the Web Console

To start the Web Console, perform the following procedure.

1. Start a Web browser.
2. Enter the following URL in the Web browser address box.

   http://*host*/Provisioning/Default.aspx

   Enter the host name or IP address of your management server to *host*.

3. The **SigmaSystemCenter Login** window appears. For details of login, see Subsection 2.1.2, "Logging in to SigmaSystemCenter."

If you start the Web Console on the management server, you can start the Web Console with the procedure; click **Start**, click **All Programs**, click **SigmaSystemCenter**, and click **SystemProvisioning Web Console**.

Note:

・When trying to start the Web Console without starting the PVM Service, an error message may appear. In this case, see Subsection 9.1.1, "Starting, Restarting, and Stopping SystemProvisioning" to start the PVM Service manually.

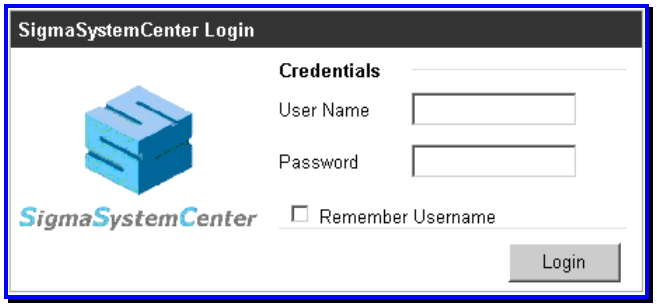
・If you start the Web Console from the Start menu, the Web Console can be opened on an open browser. In that case, open another browser and open the page you need.

2.1.2. Logging in to SigmaSystemCenter

To log in to SigmaSystemCenter, perform the following procedure. SigmaSystemCenter manages users individually besides OS authentication to control users who can use SigmaSystemCenter.

If you log in to SigmaSystemCenter for the first time, log in as an initial user explained in Subsection 2.1.3, "If You Log in to SigmaSystemCenter for the First Time."

1. If you start the Web Console, SigmaSystemCenter Login appears.



2. Enter a user name and password in the **User Name** and **Password** boxes. (Required)

Note: To log in to SigmaSystemCenter except logging in to SigmaSystemCenter for the first time, a user with administrator authority needs to register a user name and password in advance. For the registration method, see Section 2.3, "Adding a SystemProvisioning User."

3. Click **Login**.

2.1.3. If You Log in to SigmaSystemCenter for the First Time

If you log in to SigmaSystemCenter for the first time, enter the following initial user name and password.

User name	admin
Password	admin

After logging in to the Web Console with the initial user, register one or more users with administrator authority. If you register a user, you will not be able to use the initial user name and password. See Section 2.3, "Adding a SystemProvisioning User" for registering a user.

2.2. Registering License Keys

After installing SigmaSystemCenter, register license keys on the license key sheet that comes with the product. Register the license keys with the following procedure.

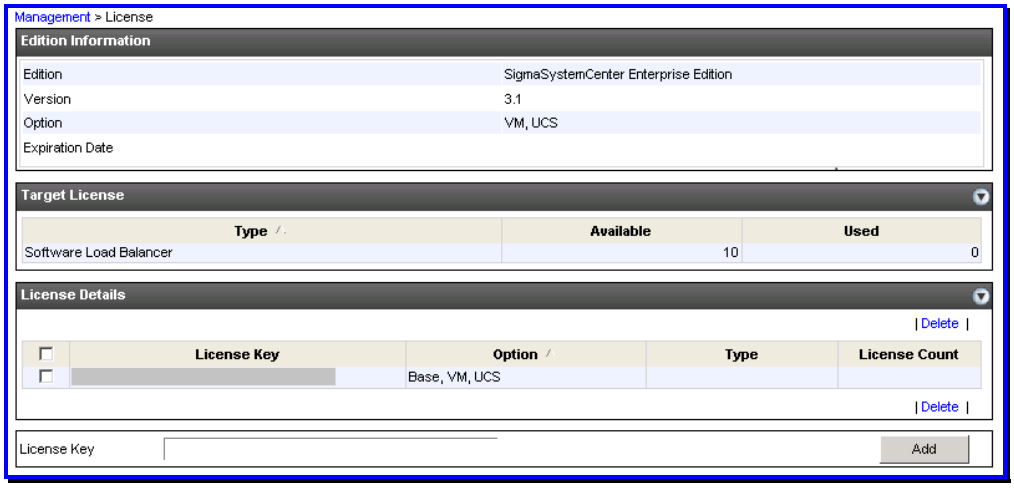
1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **License** in the **Management** tree.
3. Details of licenses appear on the Main Window.
4. Enter license keys in the **License Key** box. (Required)

Note: When you register license keys, register the edition license first.

For the kinds of licenses, see Section 2.2, "Product Architecture and License of SigmaSystemCenter" in *SigmaSystemCenter First Step Guide*.

---

5. Click **Add**.
6. The message that says "Please restart PVMService to make the license effective." is displayed. Click **OK**.
7. The information of the added license appears under **License Details**.



8. Enter the rest of the licenses.

9. After registering all license keys, restart SystemProvisioning.

Note: When a license key is entered in the **License Key** box and the **Add** is clicked, the following message appears:

```
Please restart PVMService to make the license effective.
```

After completing the registration of all license keys, restart SystemProvisioning. In the case of registering only target licenses, however, restart of SystemProvisioning is unnecessary.

2.3. Adding a SystemProvisioning User

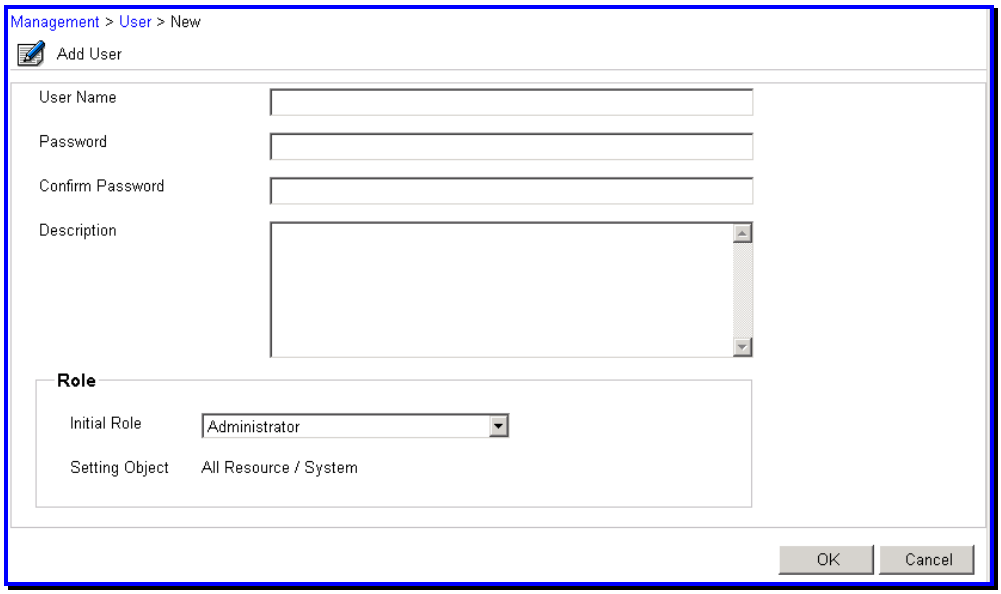
A user who uses SystemProvisioning needs to add an account of the user. To add an account, perform the following procedure:

Note:

・When registering the initial user, select the **System Administrator** in the **Initial Role** list, because the initial user must have the administrator authority.

・To use SystemProvisioning, at least one user with administrative authority must be registered.

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Under **User List**, click **Add** of the Action menu. **Add User** appears on the Main Window.



5. Enter a user name in the **User Name** box. (Required)
6. Enter a password in the **Password** and **Confirm Password** box. (Required)
7. Select a role to assign the user in the **Initial Role** list.

Reference: For prepared roles, see "1.1.7 Controlling Access with a Role".

8. Click **OK**.

2.4. Configuring the Environment

Configure the environment of SigmaSystemCenter to make it suitable for your system operations either before or after starting the operations with SigmaSystemCenter.

This section provides the procedure to configure the environment of SigmaSystemCenter.

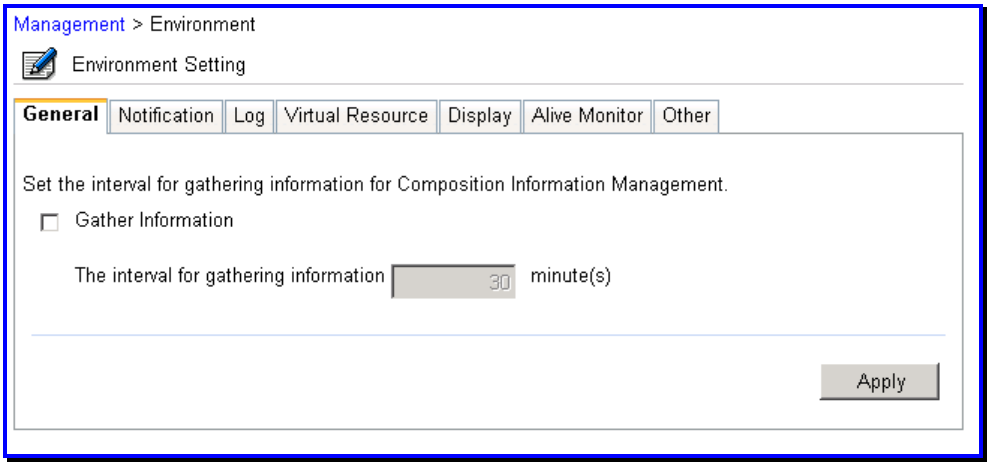
1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **Environment** in the **Management** tree.
3. **Environment Setting** appears on the Main Window.

Configure settings on each tab with the procedure in the following subsections.

2.4.1. Configuring the Setting of Collecting the Configuration Information

To change the setting from the default setting of collecting the configuration information, which is not collecting the configuration information periodically, perform the following procedure:

1. Display the **Environment Setting** window, and click the **General** tab.



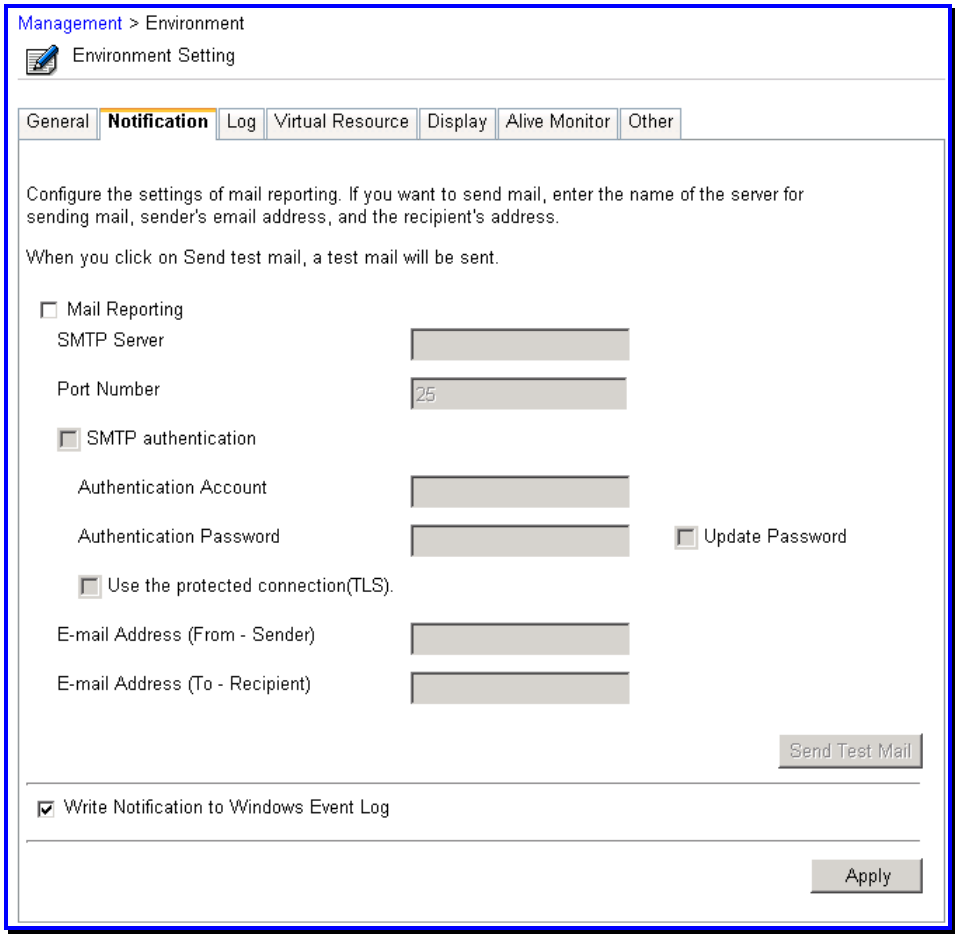
2. Select the **Gather Information** check box.
3. Enter an interval for collecting the configuration information in **The interval for gathering information** box. (Required)
4. Click **Apply**.

2.4.2. Configuring the Mail Reporting

To configure to report by mail when a failure is detected, perform the following procedure:

Mail reports are sent at the timing of event detection, such as failure detection, and starting and ending actions if Report / E-mail, Event Log action of policy is set. For the details of policy actions, see Subsection 4.10.6, "Configuring Event Handler Settings of a Policy Monitoring Event."

1. Display the **Environment Setting** window, and click the **Notification** tab.



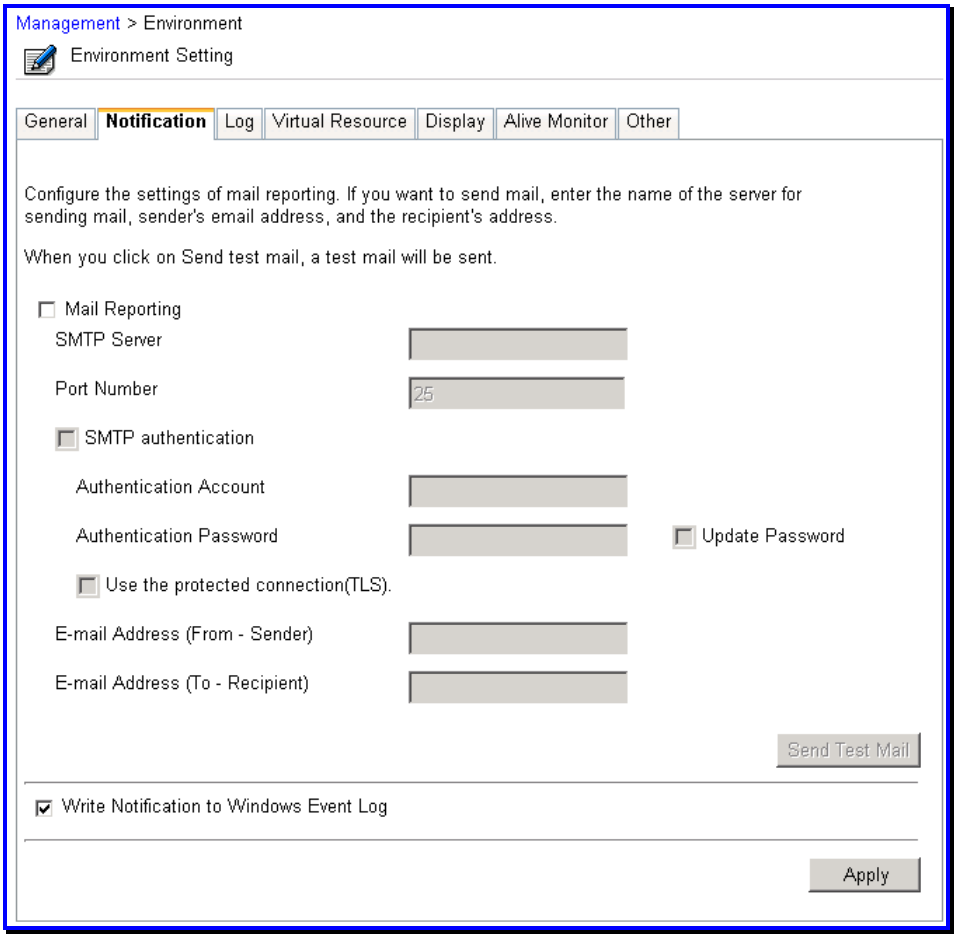
2. Select the **Mail Reporting** check box.
3. Enter a name of a mail server for communication in the **SMTP Server** box.
4. Type the port number of the destination mail server in the **Port Number** box. The default value is "25".
5. Select **SMTP authentication** check box if mails are sent by using the SMTP authentication. If they are not, skip to the procedure 9
6. Type the SMTP authentication account in the **Authentication Account** box.

7. Select the **Update Password** check box and type the SMTP authentication password in the **Authentication Password** box. You do not need to set the password if it has already entered and no need to be changed.
8. Select the **Use the protected connection (TLS)** check box if you use the secure connection at sending mails.
9. Enter a mail address of a sender in the **E-mail Address (From - Sender)** box.
10. Enter a mail address of a recipient in the **E-mail Address (To - Recipient)** box. If you specify multiple addresses, separate each address with ",".
11. Click **Send Test Mail** to check if the test mail is sent successfully.
12. Click **Apply**.

2.4.3. Configuring the Setting of Recording Notifications to Event Log

To record notifications that SystemProvisioning received and results of policy execution by notifications in the event log, perform the following procedure:

1. Display the **Environment Setting** window, and click the **Notification** tab.



2. Select or clear the **Write Notification to Windows Event Log** check box.

Note: If the **Write Notification to Windows Event Log** check box is selected, the following notifications will be recorded in the event log. The check box is selected by default.

- Information of a received notification
- A notification of action launched by a policy and its result notification

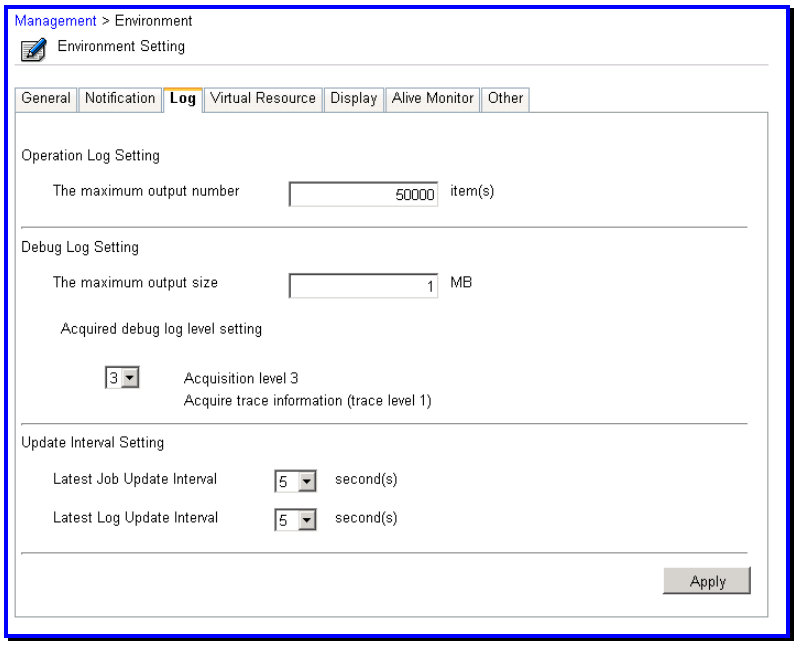
3. Click **Apply**.

By installing NEC ESMPRO Agent into the SystemProvisioning management server, the information recorded in the event log can be received by NEC ESMPRO Manager and displayed on the AlertViewer of NEC ESMPRO Manager.

2.4.4. Configuring the Log Output

Operation logs can be referred from the Operation Logs window in the Monitor view. The operation logs displayed in the Operation Logs window are stored in the database. If the number of output logs exceeds the maximum of it, the earliest log will be deleted. To change the setting for outputting Operation log and Debug log and the update interval for the log and job information on the message window from the default setting, perform the following procedure:

1. Display the **Environment Setting** window, and click the **Log** tab.



2. Enter a maximum output number of the Operation log in **The maximum output number** box under **Operation Log Setting**.

Note:

・In the environment of this system, the maximum output number of operation logs is 100,000. Set the number to 100,000 or less when setting the value.

For the system requirements, see Chapter 3, "Operational Environment" in *SigmaSystemCenter First Step Guide*.

・Operation logs can be seen from the **Operation Logs** window in the **Monitor** view. The operation logs that are displayed in the **Operation Logs** window are stored in the database. If the number of output logs exceeds the maximum of it, the earliest log will be deleted.

3. Enter the maximum output size of the Debug log in **The maximum output size** box under **Debug Log Setting**.

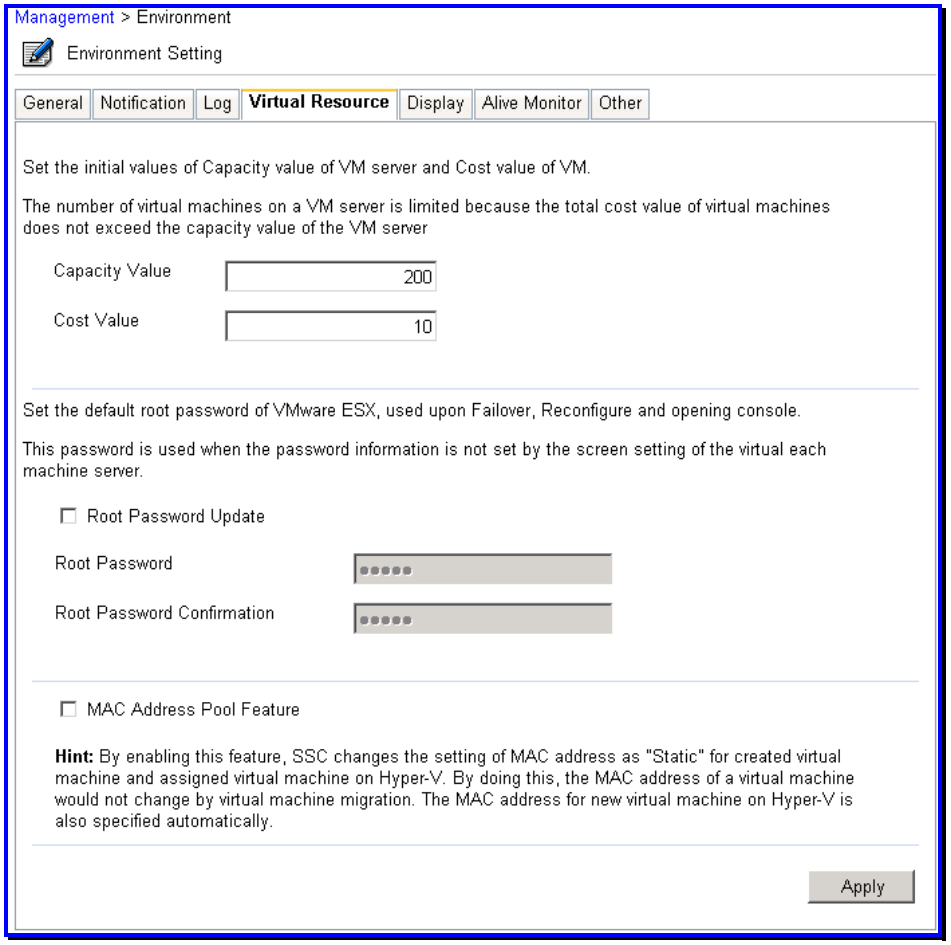
Reference: For a list of debug logs output by SystemProvisioning, see Subsection 2.3.1, "Logs of SystemProvisioning" in *SigmaSystemCenter Data Reference Guide*.

4. Select the level of acquisition of the Debug log in the **Acquired debug log level setting** list.
5. Select the update interval of the latest jobs and logs from the **Update Interval Setting** box.
6. Click **Apply**.

2.4.5. Configuring the Information of a Virtual Resource

To change the default number (20) of virtual machines that are operational on one virtual machine server, perform the following procedure:

1. Display the **Environment Setting** window, and click the **Virtual Resource** tab.


Management > Environment
Environment Setting
General
Notification
Log
Virtual Resource
Display
Alive Monitor
Other
Set the initial values of Capacity value of VM server and Cost value of VM.
The number of virtual machines on a VM server is limited because the total cost value of virtual machines does not exceed the capacity value of the VM server
Capacity Value
200
Cost Value
10
Set the default root password of VMware ESX, used upon Failover, Reconfigure and opening console.
This password is used when the password information is not set by the screen setting of the virtual each machine server.
Root Password Update
Root Password
Root Password Confirmation
MAC Address Pool Feature
Hint: By enabling this feature, SSC changes the setting of MAC address as "Static" for created virtual machine and assigned virtual machine on Hyper-V. By doing this, the MAC address of a virtual machine would not change by virtual machine migration. The MAC address for new virtual machine on Hyper-V is also specified automatically.
Apply

2. Enter the capacity value and cost value of a virtual machine server or a virtual machine in the **Capacity Value** and **Cost Value** boxes respectively.

Reference: For more detail of how to specify the capacity value and cost value, see Subsection 2.11.1, "Capacity Control of the Virtual Machine Server" in *SigmaSystemCenter Overview Reference Guide*.

3. Click **Apply**.

2.4.6. Configuring the Root Password of a Virtual Machine Server

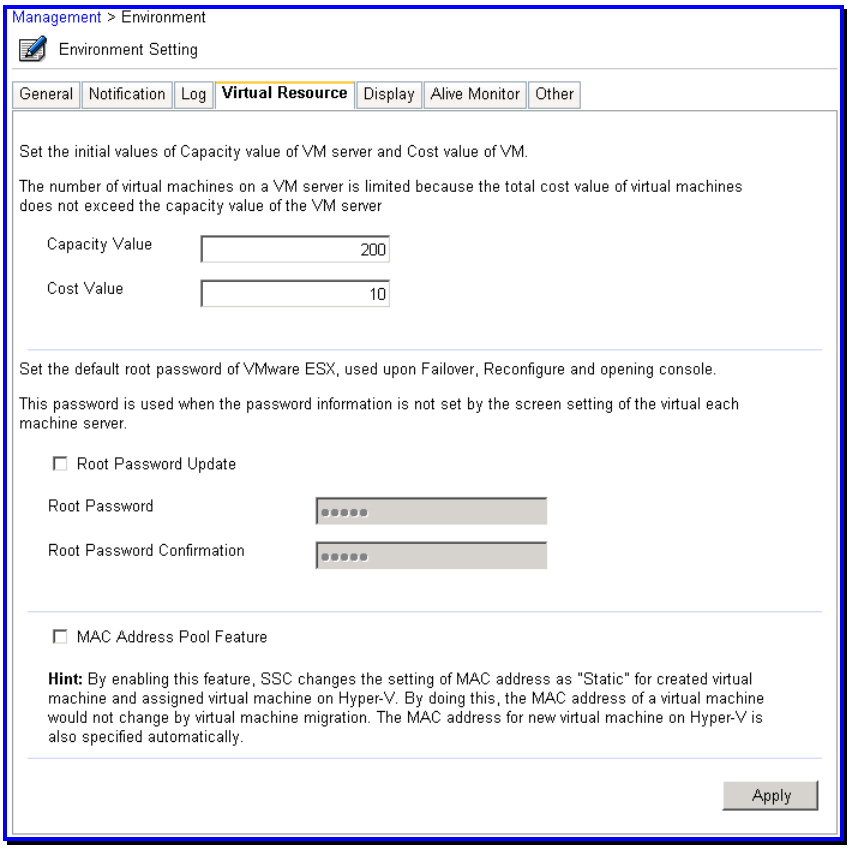
The following is the procedure of configuring a root password of ESX, which is used in the processes listed below:

A specified password is used as a default password for all ESXs. If a root password or an account / password for each ESX is not configured, the processes listed below will fail.

- Restoring failure of ESX (Failover)
- Reconfiguring a virtual machine (Reconstruct / Revert)
- Acquiring a screen shot of a virtual machine console
- Displaying a virtual machine console
- Diagnose

Note: To configure an account / password for each ESX, configure it from the Edit Subsystem window of the ESXs.

1. Display the **Environment Setting** window, and click the **Virtual Resource** tab.

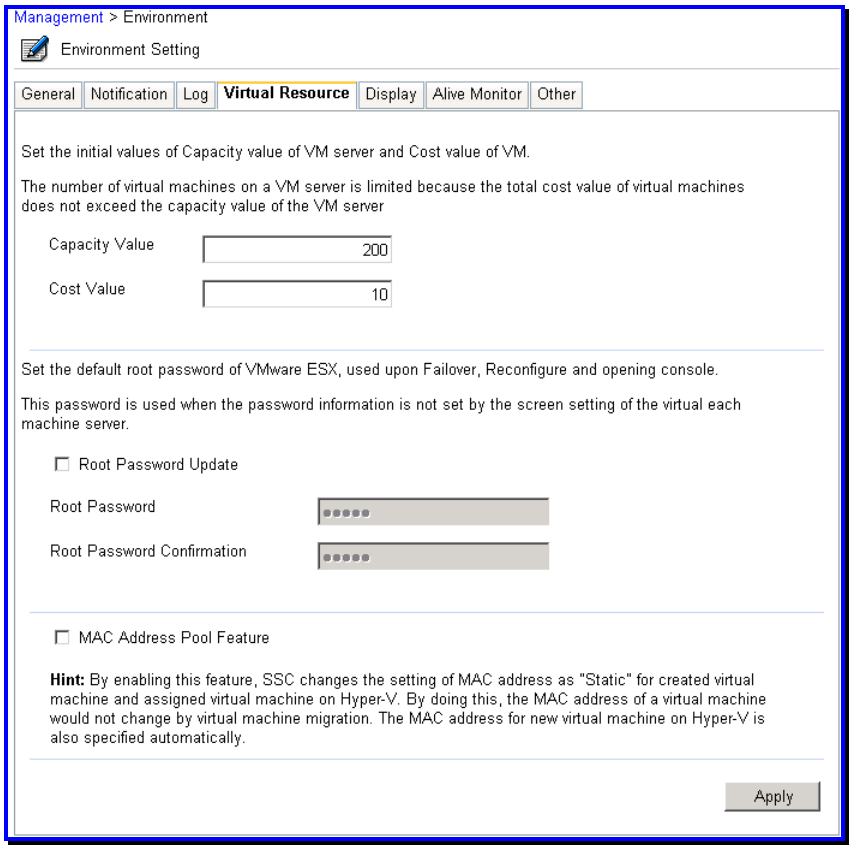

Management > Environment
Environment Setting
General
Notification
Log
Virtual Resource
Display
Alive Monitor
Other
Set the initial values of Capacity value of VM server and Cost value of VM.
The number of virtual machines on a VM server is limited because the total cost value of virtual machines does not exceed the capacity value of the VM server
Capacity Value
200
Cost Value
10
Set the default root password of VMware ESX, used upon Failover, Reconfigure and opening console.
This password is used when the password information is not set by the screen setting of the virtual each machine server.
Root Password Update
Root Password
Root Password Confirmation
MAC Address Pool Feature
Hint: By enabling this feature, SSC changes the setting of MAC address as "Static" for created virtual machine and assigned virtual machine on Hyper-V. By doing this, the MAC address of a virtual machine would not change by virtual machine migration. The MAC address for new virtual machine on Hyper-V is also specified automatically.
Apply

2. Select the **Root Password Update** check box.
3. Enter a default root password in the **Root Password** and **Root Password Confirmation** boxes.
4. Click **Apply**.

2.4.7. Configuring the MAC Address Pool

When you intend to set the static MAC addresses which are those of virtual machines created on Hyper-V or those of active virtual machines, configure this feature. This feature denies modifying MAC addresses at VM moving and sets the MAC address automatically during a virtual machine creation.

1. Display the **Environment Setting** window, and click the **Virtual Resource** tab.


Management > Environment
Environment Setting
General
Notification
Log
Virtual Resource
Display
Alive Monitor
Other
Set the initial values of Capacity value of VM server and Cost value of VM.
The number of virtual machines on a VM server is limited because the total cost value of virtual machines does not exceed the capacity value of the VM server
Capacity Value
200
Cost Value
10
Set the default root password of VMware ESX, used upon Failover, Reconfigure and opening console.
This password is used when the password information is not set by the screen setting of the virtual each machine server.
Root Password Update
Root Password
Root Password Confirmation
MAC Address Pool Feature
Hint: By enabling this feature, SSC changes the setting of MAC address as "Static" for created virtual machine and assigned virtual machine on Hyper-V. By doing this, the MAC address of a virtual machine would not change by virtual machine migration. The MAC address for new virtual machine on Hyper-V is also specified automatically.
Apply

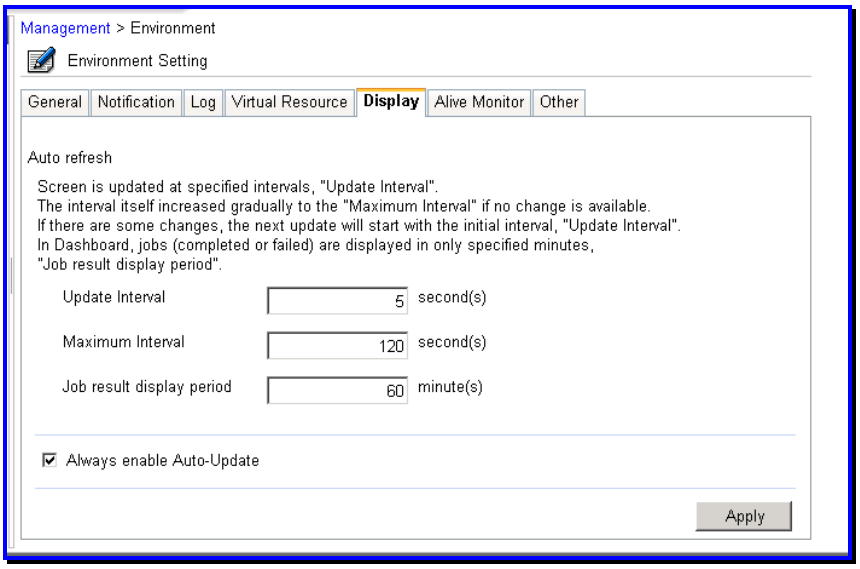
2. Select **MAC Address Pool Feature** check box.
3. Click **Apply**.

2.4.8. Changing the Setting of Auto-Update of Screens

To change the update interval of the screen (the default time is "five seconds"), the max update interval of the screen (the default time is "120 seconds"), and Job result display period (the default period is "60 minutes"), perform the following procedure:

Note: If you change the update interval, log out once and log in to the Web Console again. If not, the update interval is not reflected.

1. Display the **Environment Setting** window, and click the **Display** tab.



2. Enter the update interval in the **Update Interval** box and the **Maximum Interval** box.

   The screen is updated automatically on the frequency of the value configured in the **Update Interval** box.

   If there is no data to update, the interval to the next update is expanded to the setting value of the **Maximum Interval** box gradually. If there is any data update, the interval to the next update returns to the setting value of the **Update Interval** box.

3. Enter the period of displaying completed jobs on the Job List located on Dashboard in the **Job result display period** box.
4. To enable automatic updating of the screen, select the **Always enable Auto-Update** check box.
5. Click **Apply**.

2.4.9. Configuring the Setting of Alive Monitor

SigmaSystemCenter checks the status of a managed machine and the communication path between a management server and a managed machine periodically. Alive Monitor of SigmaSystemCenter uses NEC ESMPRO Manager, vCenter Server, or SystemProvisioning according to the kinds of managed machines.

This subsection explains the alive monitoring which SystemProvisioning executes directly.

Alive monitor of SystemProvisioning monitors the server down status by executing the following operations towards managed machines:

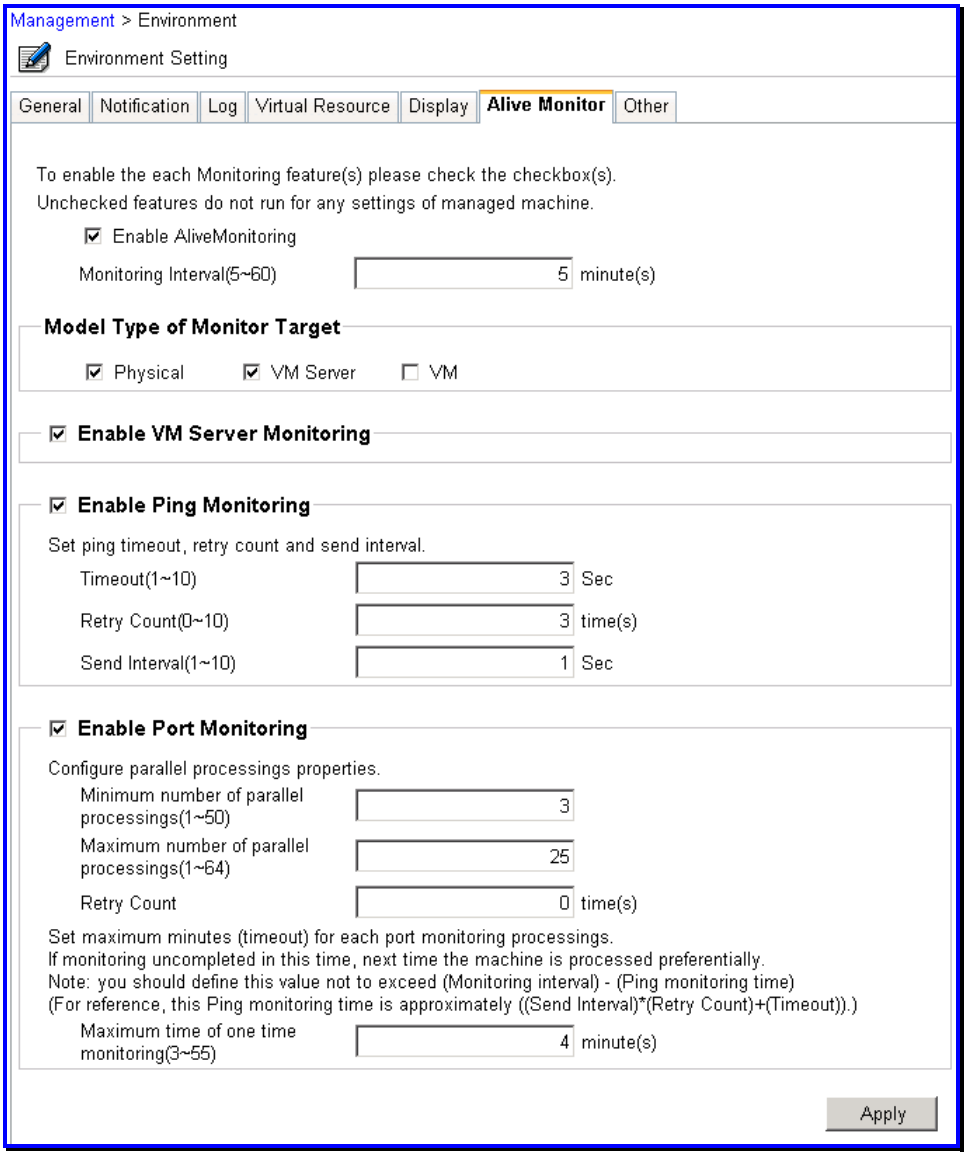
- Examining the communication with Ping (Ping monitoring)
- Connecting to the specified TCP port (Port monitoring)

For a virtual machine server, whether a managed machine works as a virtual machine server or not can be monitored. This virtual machine server monitoring is available for Xen, Hyper-V and KVM.

Note: To execute alive monitoring of SystemProvisioning with Ping monitoring or Port monitoring, an IP address for management must be configured. If it is not configured, the server down status of a managed machine is not monitored.

Reference: For the alive monitoring of SigmaSystemCenter, see Subsection 2.12.6, "Alive Monitoring of Virtual Machine Servers" in *SigmaSystemCenter Overview Reference Guide* and 1.2.3, "Events SystemProvisioning Can Detect" in *SigmaSystemCenter Data Reference Guide*.

1. Display the **Environment Setting** window, and click the **Alive Monitor** tab.



2. To enable alive monitoring, select the **Enable AliveMonitoring** check box. (Selected by default.)

Note: If the alive monitoring is not enabled, the screens of the alive monitor setting for an operation group, a model or a host do not appear. The monitoring is not executed although the settings are configured in advance.

3. To change the default value of the monitoring interval, enter the value in the **Monitoring Interval** text box.

4. Select the check box of the target model to monitor the server down status under **Model Type of Monitor Target**.

Note: If the check box of a model type is cleared, the alive monitoring of the model type cannot be configured for an operation group, a model or a host. The monitoring is not executed although the settings are configured in advance.

5. To enable the setting of monitoring VM servers, select the **Enable VM Server Monitoring** check box. (Selected by default.)
6. To enable the setting of Ping monitoring, select the **Enable Ping Monitoring** check box. (Selected by default.)
7. To change timeout, retry count, or send interval of Ping, enter each value in each text box.
8. To enable the setting of Port monitoring, select the **Enable Port Monitoring** check box. (Selected by default.)
9. To change minimum number of parallel processes, maximum number of parallel processes, retry count, or maximum time of one time monitoring, enter each item in each text box.

Note: Port monitoring monitors multiple machines in parallel. Configure the maximum value without exceeding the following values:

- Available ephemeral ports
- The number of CPU core * 25

In the **Maximum time of one time monitoring** box, configure the monitoring time for one Port monitoring processing by minutes. If the alive monitoring processing time exceeds this value, unmonitored machines take precedence over the other machines in the next alive monitoring processing monitors.

This value must be less than the value calculated with the following expression:

(Monitoring Interval) - (The necessary time for Ping monitoring).

The necessary time for Ping monitoring is approximately calculated with the following expression:

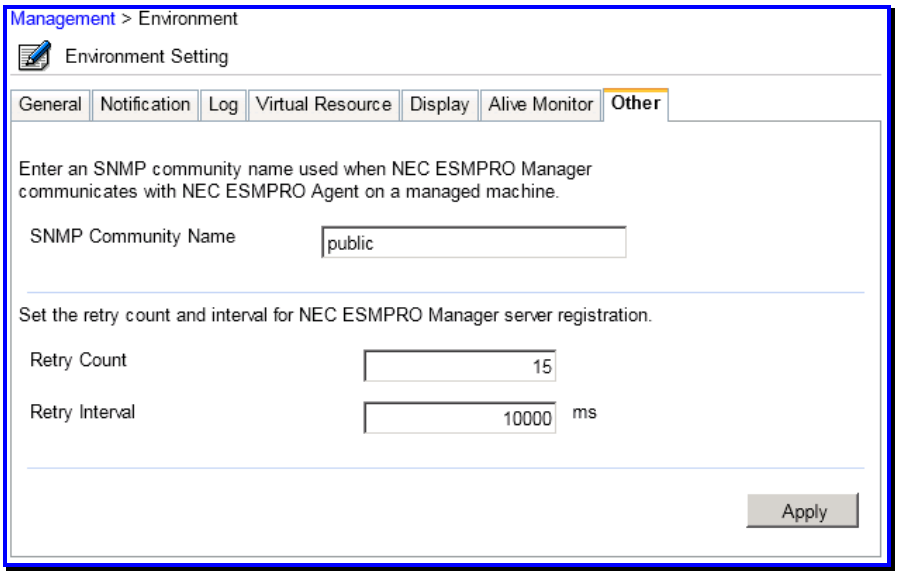
(Send Interval) * (Retry Count) + (Timeout).

10. Click **Apply**.

2.4.10. Configuring the Information of Compatible NEC ESMPRO Manager

The following is the procedure of registering the information for working with NEC ESMPRO Manager. If you change an SNMP community name that is used when NEC ESMPRO Manager is communicating with NEC ESMPRO Agent from its default name, "public," perform the following procedure:

1. Display the **Environment Setting** window, and click the **Other** tab.



2. Enter an SNMP community name in the **SNMP Community Name** box.
3. Click **Apply**.

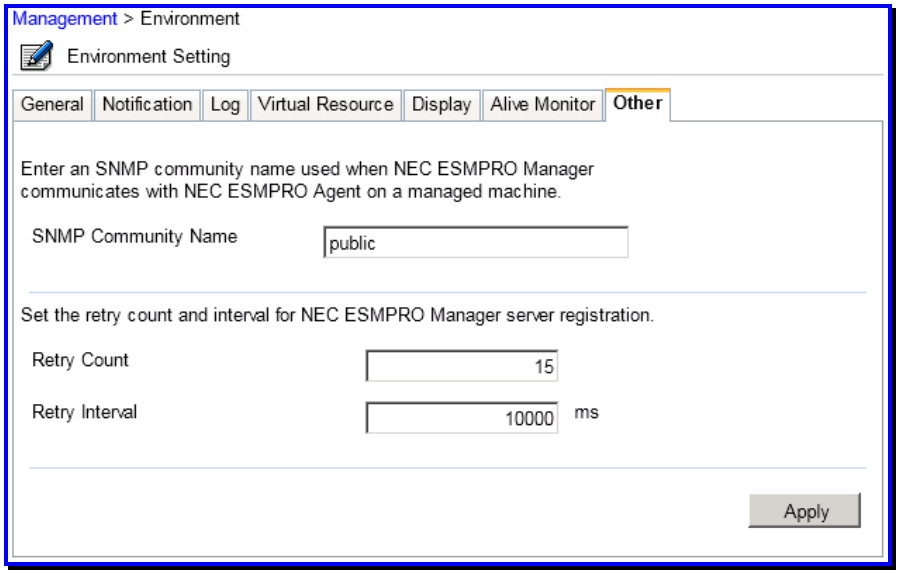
2.4.11. Changing the NEC ESMPRO Manager Retry Count and Interval

SigmaSystemCenter registers a machine to NEC ESMPRO Manager as a monitoring target when activating the machine in a group. A failure event of a managed machine is notified through NEC ESMPRO Manager to SystemProvisioning. To change a retry count (the default count are 15 times) and interval (the default interval is 10000 milliseconds) of registering a machine to NEC ESMPRO Manager, perform the following procedure:

Note: If you want to reset a changed setting, clear the fields of the items, and click Apply.

---

1. Display the **Environment Setting** window, and click the **Other** tab.



2. To change the retry count, enter the number of times in the **Retry Count** box.
3. To change the retry interval, enter the time in the **Retry Interval** box.
4. Click **Apply**.

3. Settings of Related Products

This chapter explains the configuration of related products used by SigmaSystemCenter.

This chapter contains the following sections:

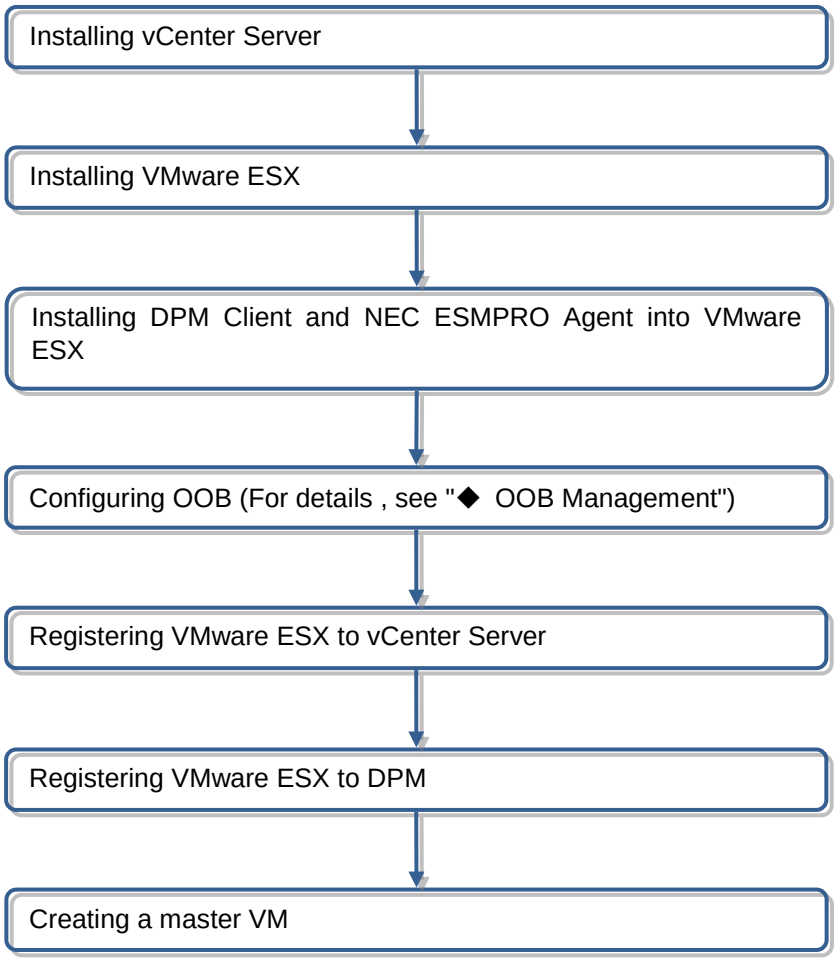
- 3.1 Settings of Related Products 52
- 3.2 Configuring Settings for a Switch 57
- 3.3 Configuring Settings for a Load Balancer 62
- 3.4 Configuring Settings for a Software Load Balancer 63
- 3.5 Configuring Settings for Storage 64
- 3.6 Configuring Settings for a Virtual Environment 68
- 3.7 Configuring DPM 71
- 3.8 Setting up a Managed Machine 81
- 3.9 Configuring Settings for Sending Failure Events From the Managed Machine 86
- 3.10 Preparing for the Use of Out-of-Band (OOB) Management 92
- 3.11 Creating a Scenario in DPM 102
- 3.12 Creating a Master VM in a Virtual Environment 117

3.1. Settings of Related Products

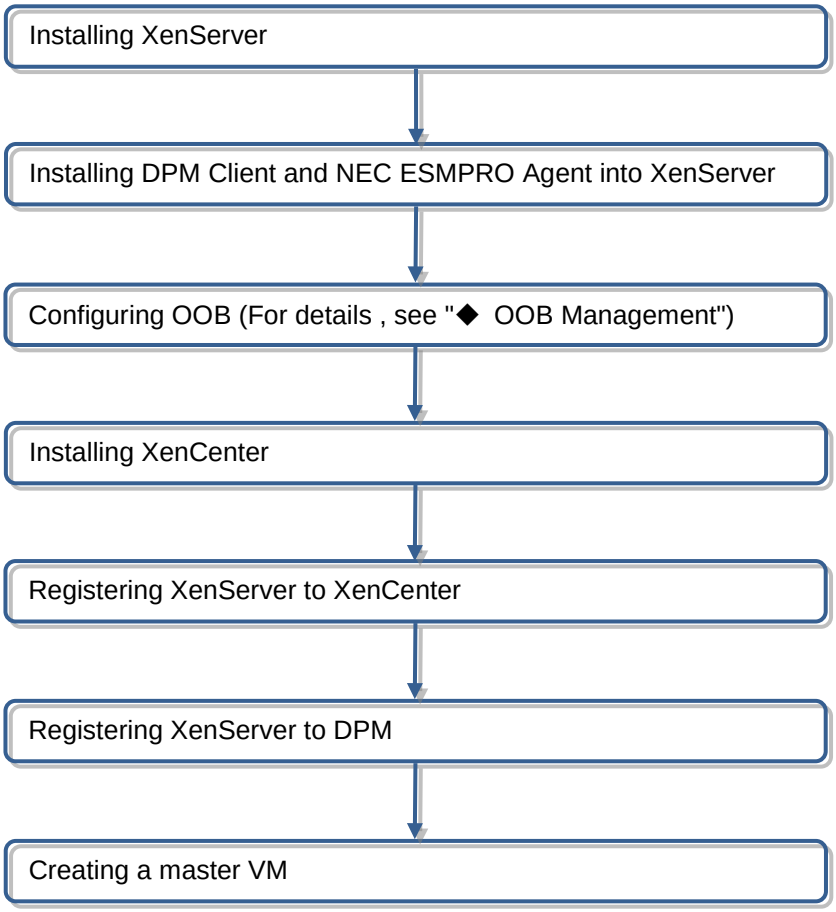
This chapter provides an explanation of preparing products that are used in SigmaSystemCenter; these operations must be completed before beginning operation with SigmaSystemCenter. If you have an environment that these settings have been configured already, you do not need to do over. See Chapter 4, "Registering Resources to SigmaSystemCenter" to register related products to SigmaSystemCenter.

The flows of settings of related products are as follows:

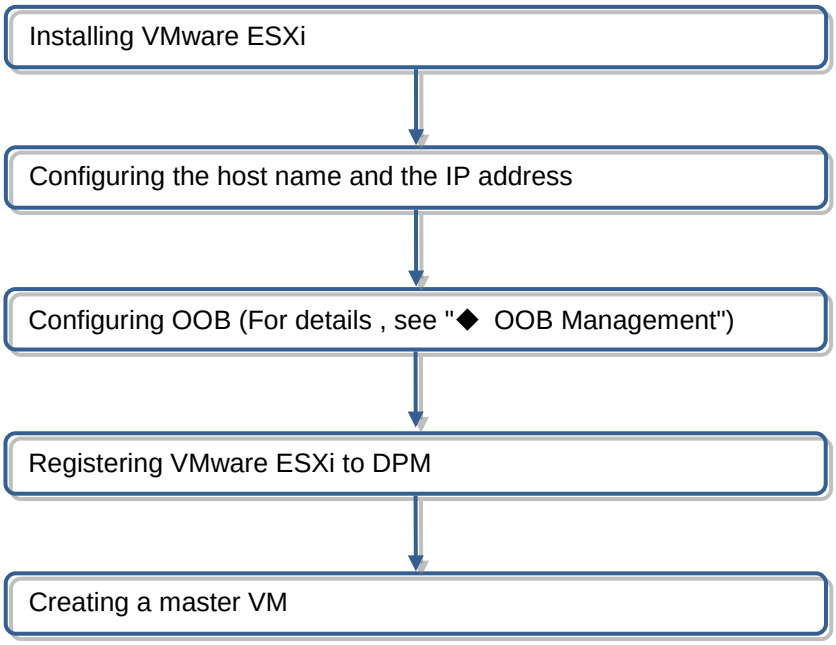
◆ VMware ESX (vCenter Server management)


Installing vCenter Server
Installing VMware ESX
Installing DPM Client and NEC ESMPRO Agent into VMware ESX
Configuring OOB (For details , see "◆ OOB Management")
Registering VMware ESX to vCenter Server
Registering VMware ESX to DPM
Creating a master VM

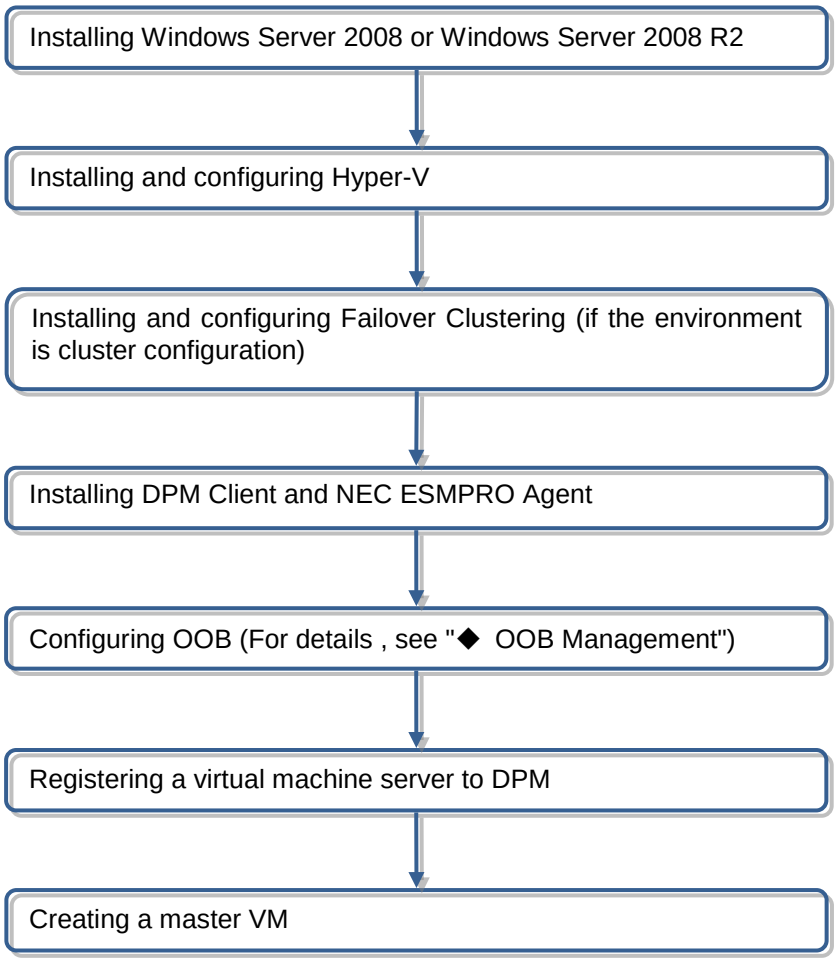
◆ XenServer


Installing XenServer
Installing DPM Client and NEC ESMPRO Agent into XenServer
Configuring OOB (For details , see "◆ OOB Management")
Installing XenCenter
Registering XenServer to XenCenter
Registering XenServer to DPM
Creating a master VM

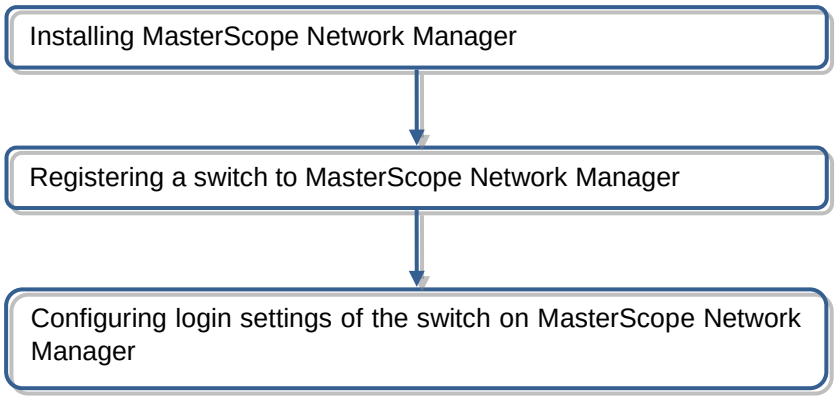
◆ VMware ESXi (standalone ESXi)


Installing VMware ESXi
Configuring the host name and the IP address
Configuring OOB (For details , see "◆ OOB Management")
Registering VMware ESXi to DPM
Creating a master VM

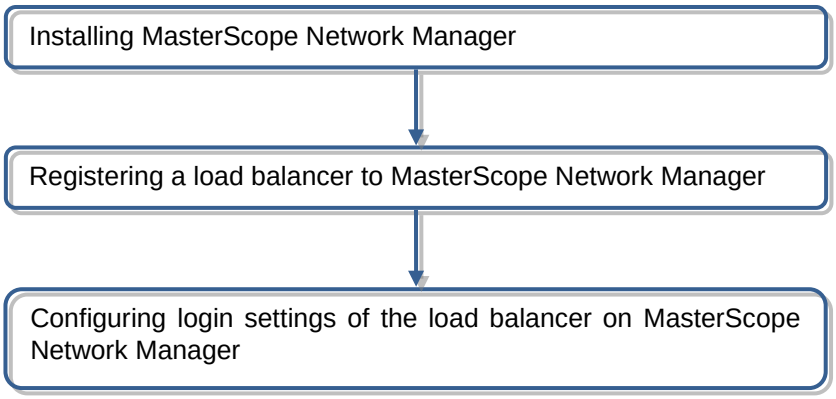
◆ Hyper-V


Installing Windows Server 2008 or Windows Server 2008 R2
Installing and configuring Hyper-V
Installing and configuring Failover Clustering (if the environment is cluster configuration)
Installing DPM Client and NEC ESMPRO Agent
Configuring OOB (For details , see "◆ OOB Management")
Registering a virtual machine server to DPM
Creating a master VM

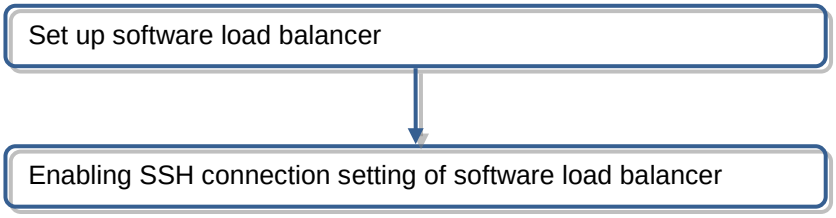
◆ Physical Switch


Installing MasterScope Network Manager
Registering a switch to MasterScope Network Manager
Configuring login settings of the switch on MasterScope Network Manager

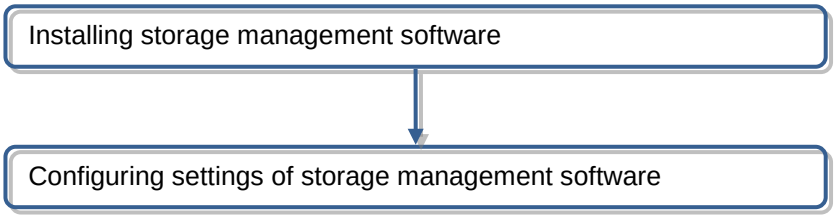
- Load Balancer


Installing MasterScope Network Manager
Registering a load balancer to MasterScope Network Manager
Configuring login settings of the load balancer on MasterScope Network Manager

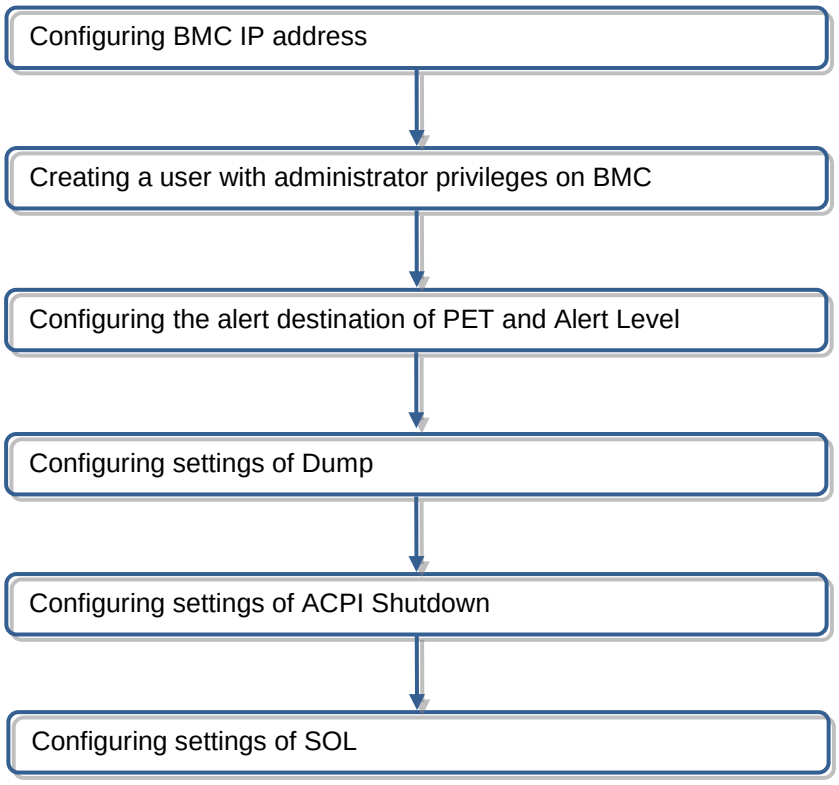
- Software Load Balancer



- Storage



- OOB Management


Configuring BMC IP address
Creating a user with administrator privileges on BMC
Configuring the alert destination of PET and Alert Level
Configuring settings of Dump
Configuring settings of ACPI Shutdown
Configuring settings of SOL

3.2. Configuring Settings for a Switch

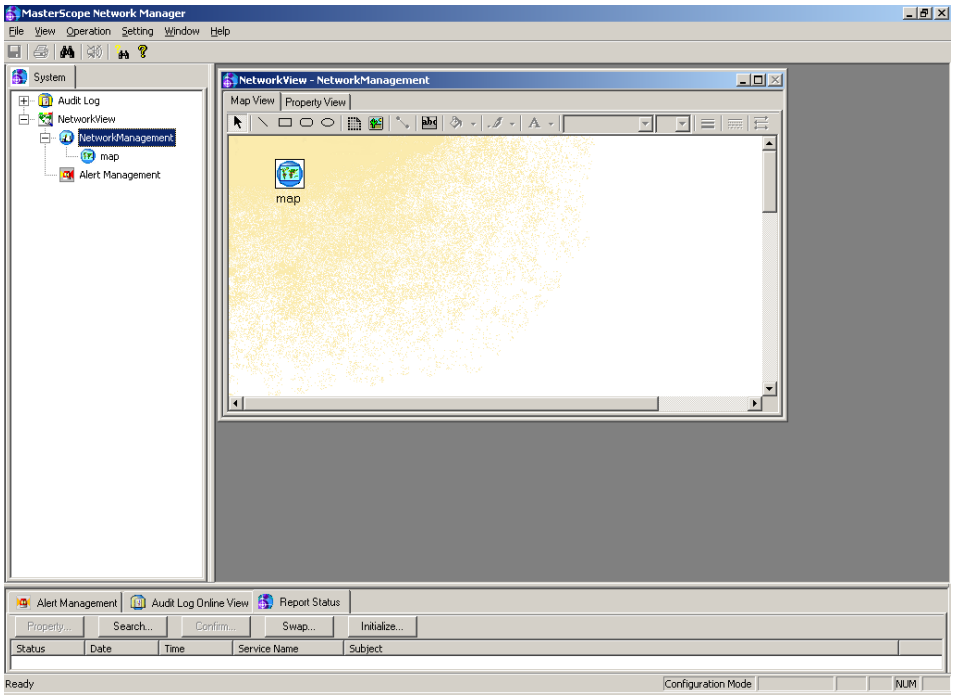
If you want to use a switch managed in SigmaSystemCenter, you need to configure settings for the switch and register it in MasterScope Network Manager in advance. See from Subsection 3.2.1, "Registering a Switch to MasterScope Network Manager" to 3.2.2, "Configuring the Login Management for a Switch in MasterScope Network Manager" to configure MasterScope Network Manager.

3.2.1. Registering a Switch to MasterScope Network Manager

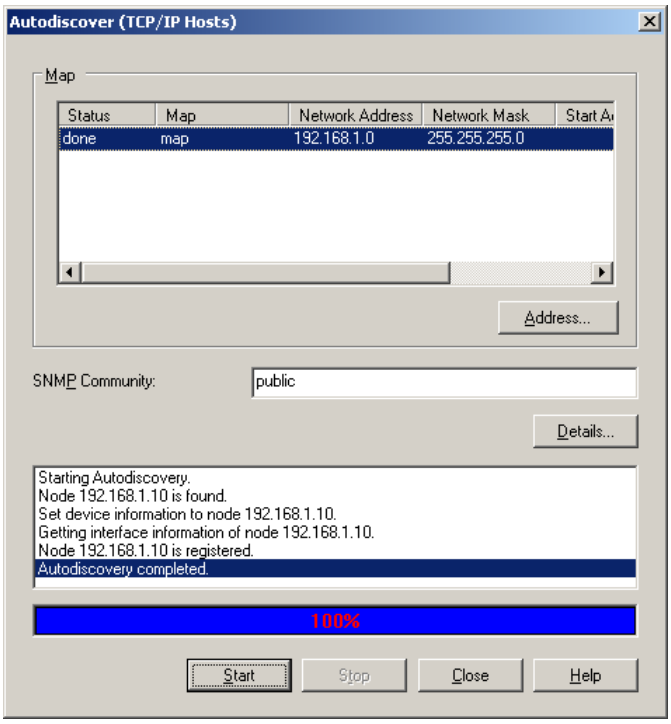
After configuring a network for switches managed in MasterScope Network Manager, register the switch to MasterScope Network Manager with the following procedure:

Reference: For details of the setting, see manuals of MasterScope Network Manager.

1. Select **Start**, select **All Programs**, click **MasterScope Network Manager** and click **MasterScope Network Manager Console** to start the console of MasterScope Network Manager.
2. From the **Setting** menu, select **Configuration Mode** to operate in the configuration mode.
3. On the **System** tab, click the **NetworkView** icon, click the **NetworkManagement** icon, and right-click the **map** icon. On the context menu, click **Configuration Management**, click **Autodiscover**, and click **TCP/IP Hosts**.



4. The **AutoDiscover(TCP/IP Hosts)** dialog box appears. Click **Address**.
5. The **Address** dialog box appears. Specify the range for IP address and click **OK**. And then, click **Start** on the **AutoDiscover (TCP/IP Hosts)** dialog box.



6. An icon of the detected switch is displayed on the Operation Window displayed by clicking the **NetworkView** icon, the **NetworkManagement** icon, and the **map** icon.

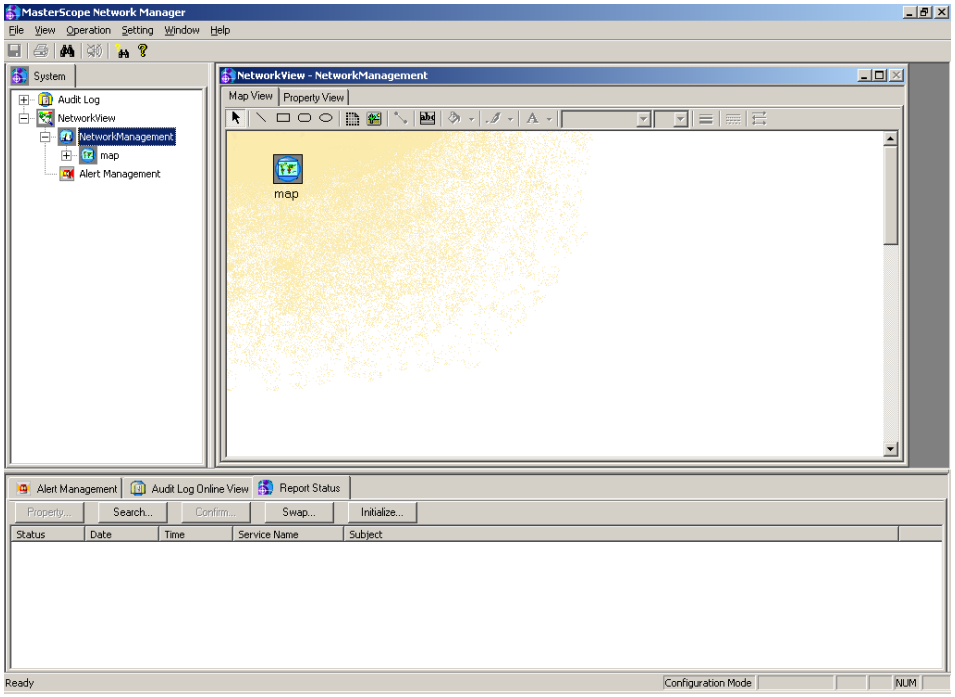
3.2.2. Configuring the Login Management for a Switch in MasterScope Network Manager

To configure the login management for a switch, which is registered with the procedure in Subsection 3.2.1, "Registering a Switch to MasterScope Network Manager" in MasterScope Network Manager, perform the following procedure.

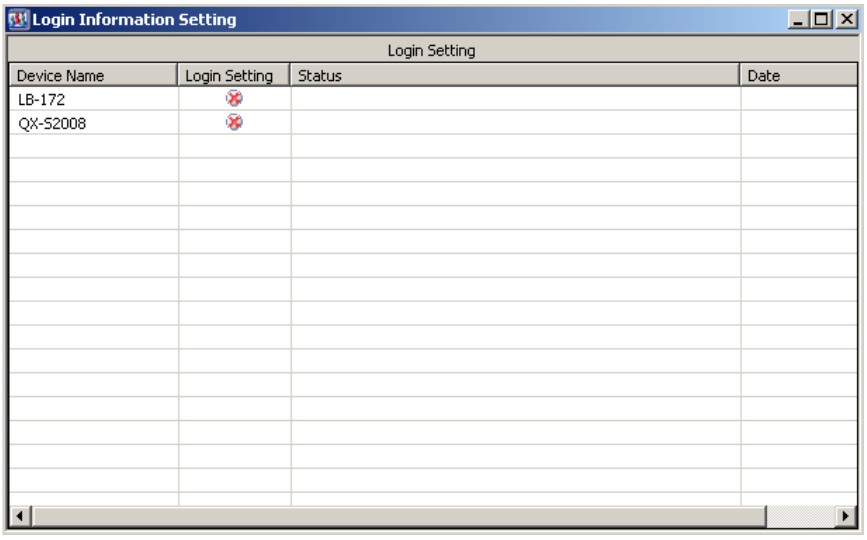
Reference: For details of authentication settings, you can also see manuals of MasterScope Network Manager.

1. Select **Start**, select **All Programs**, click **MasterScope Network Manager**, and click **MasterScope Network Manager Console** to start the console of MasterScope Network Manager.
2. From the **Setting** menu, select **Configuration Mode** to operate in the configuration mode.

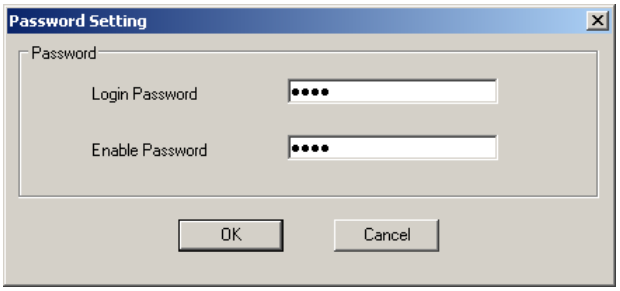
3. On the **System** tab, click the **NetworkView** icon, click the **NetworkManagement** icon, and right-click the **map** icon. On the context menu, click the **Login Information Setting**.



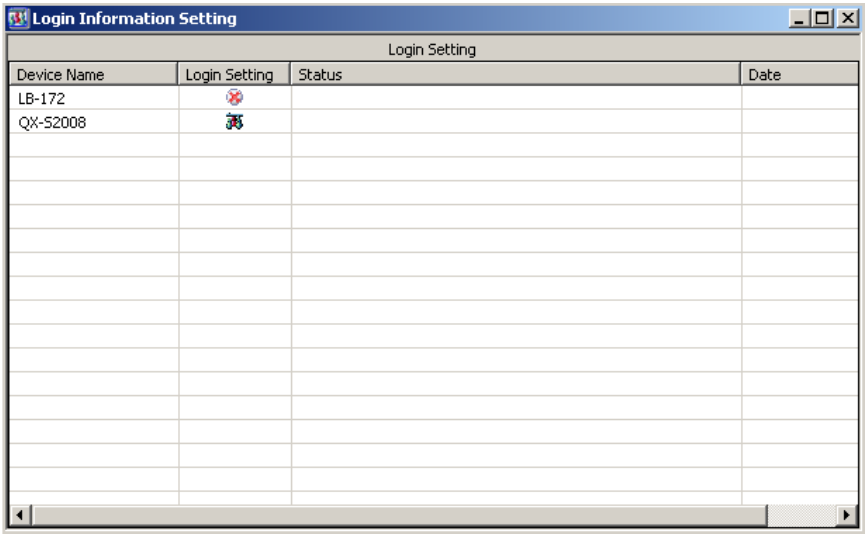
4. The **Login Information Setting** screen appears. Right-click the target device, click **Login Setting**, and click **Password Setting**.



5. The **Password Setting** dialog box appears. Enter a password in the **Login Password** box and **Enable Password** box.

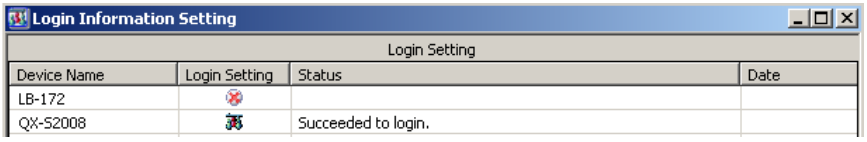


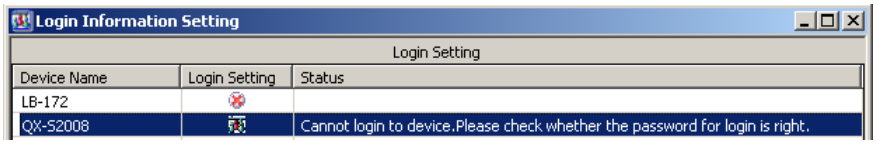
6. Click **OK**.
7. The **Login Information Setting** screen appears. The icon of the device under **Login Setting** changes.



8. Right-click the device to which you want to test log in, and then click **Login Test**.

9. The test result is displayed under **Status** on the **Login Information Setting** screen.





If the test fails, check the information displayed under **Status**, clear the cause of the failure, and try the test again.

3.3. Configuring Settings for a Load Balancer

If you want to use a load balancer managed in MasterScope Network Manager, you need to configure the load balancer to MasterScope Network Manager. Perform the following procedure to configure a load balancer.

3.3.1. Registering a Load Balancer to MasterScope Network Manager

After configuring a load balancer, you need to register the load balancer to MasterScope Network Manager.

The load balancer registration procedure is the same as that of a switch; see Subsection 3.2.1, "Registering a Switch to MasterScope Network Manager."

3.3.2. Configuring the Login Management for a Load Balancer in MasterScope Network Manager

You need to configure the login management for a load balancer in MasterScope Network Manager.

The procedure of configuring the login management for a load balancer is the same as that of a switch; see Subsection 3.2.2, "Configuring the Login Management for a Switch in MasterScope Network Manager."

3.4. Configuring Settings for a Software Load Balancer

If you want to use a software load balancer, you need to configure the software load balancer in advance.

3.4.1. Enabling SSH Connection of Software Load Balancer

Enabling the SSH connection by setting the software load balancer.

3.5. Configuring Settings for Storage

If you want to use storage, you need to configure storage-related products in advance. You can use four types of storage with SigmaSystemCenter: NEC Storage, CLARiiON, Symmetrix, and NetApp. Configure your storage with the following procedures.

3.5.1. Preparing Storage

The only setting that you can configure to storage devices from SigmaSystemCenter is access control for disk volumes. You cannot configure setting for a storage device or for software that controls storage from SigmaSystemCenter. You need to configure these settings using the software before you start using the storage.

Configure the following setting according to your storage type.

- If you use NEC Storage

  To manage NEC Storage by SystemProvisioning, you need to set up NEC Storage Manager in the NEC Storage environment. The following is the flow of the setup. For more details, see manuals of NEC Storage Manager.

  1. Setup on NEC Storage Manager

     Register a user account of NEC Storage Manager.
  2. Configuring a SG file of NEC Storage Manager Integration Base

     Configure the setting for using NEC Storage Manager Server from NEC Storage Manager Integration Base.
  3. Registration of disk arrays on NEC Storage Manager

     Register disk arrays to be managed by SystemProvisioning.
  4. Creating LDs on NEC Storage

     Create LDs on the disk arrays.
  5. Creating LD sets on NEC Storage and configuring access control

     Create LD sets on the disk arrays, and set access control to WWN mode.

  Note:

  ▪ If you use NEC Storage D8, you can only control each logical partition from SigmaSystemCenter. You cannot change the configuration of multiple logical partitions.

  ▪ SigmaSystemCenter does not support such a management that configures multiple hosts for one LD set. Configure the host and LD set relation as 1:1 on NEC Storage Manager. To share a LD with multiple hosts, divide the LD set according to the hosts.

- If you use CLARiiON

  To use a disk array device of CLARiiON from SystemProvisioning, you need to install Navisphere CLI on the management server. For more details, see manuals of Navisphere.

  1. Installing management software

     Install Navisphere CLI, the management software of CLARiiON, on the storage management server.
  2. Configuring Navisphere CLI

     Register the Navisphere CLI path to an environmental variable*, PATH*.
  3. Creating a LUN

     Create a LUN by using the management software.
  4. Creating a storage group.

     Create a storage group on CLARiiON by using the management software.

  Note: SigmaSystemCenter does not support such a management that configures multiple hosts for one storage group. Configure the host and storage group relation as 1:1 on management software. To share a LUN with multiple hosts, divide the storage group according to the hosts.

- If you use Symmetrix

  To use a disk array device of Symmetrix from SystemProvisioning, you need to install SYMCLI on the management server. For more details, see manuals of SYMCLI.

  1. Installing management software

     Install the management software of Symmetrix on the storage management server.
  2. Installing the Solutions Enabler

     Install the Solutions Enabler on the management server.
  3. Configuring the Solutions Enabler

     Configure *PATH*, the environmental variable of Solutions Enabler, so that it can run commands on Symmetrix.

     When configuring or having already configured a management server for Symmetrix storage, be sure to construct an environment where the SYMCLI command can be executed from the management server. For the details, see manuals of Solutions Enabler.

4. Creating a logical device and assigning the devices

   The information on how to create the Symmetrix device is not disclosed. To change the configuration such as creating device, please contact Symmetrix support.

   Note: You cannot manage Symmetrix connected remotely with SigmaSystemCenter.

- If you use NetApp

  To be managed for the NetApp disk array devices with SystemProvisioning, the prior initial setting in the Data ONTAP environment are required. For details about the initial setting, refer to the corresponding NetApp manuals. The NetApp disk array devices can be managed as NAS (not supported as an FC / iSCSI disk).

1. Initial setting of Data ONTAP

   Perform the initial setting of Data ONTAP.

   Note: The setting for NAS utilization is required.

2. Creating Aggregate on NetApp

   Create Aggregate on a disk array.

3. Create Volume on NetApp

   Create Volume to be used as a NAS. Volume can be created through SigmaSystemCenter. In that case, Volume is not required to be created at this procedure.

   Note:

   ▪ If you create the Volume directly on the disk array device, delete export settings.

   ▪ SigmaSystemCenter only supports FlexVol of the Volume type.

3.5.2. Considering the Drive Letter Setting of Partition and Volume

When a machine is connected to a logical disk on storage triggered by the machine configuration, a drive letter of partition and volume on the logical disk are allocated according to the status of connection to the logical disk or a type of OS. Create a distribution image according to your operational plan.

<table>
<tr><th rowspan="2">Type of distribution image</th><th colspan="2" rowspan="2">Status of connection of a logical disk before creating a distribution image</th><th colspan="4">OS</th></tr>
<tr><th>Windows Server 2000</th><th>Windows Server 2003</th><th>Windows Server 2008</th><th>Linux</th></tr>
<tr><td rowspan="3">Full backup</td><td colspan="2">Never connected to a logical disk</td><td colspan="3">The OS allocates a drive letter. The drive letter is allocated in order, usually from the C drive, including built-in disk of the managed machine.</td><td>The OS allocates a device file. The device file is allocated in order from the built-in disk.</td></tr>
<tr><td rowspan="2">Have connected to…</td><td>The same logical disk after distribution</td><td colspan="3">The same drive letter as the one that has allocated to the partition and volume on the logical disk.</td><td>The same device</td></tr>
<tr><td>A LD that is not the same logical disk after distribution</td><td colspan="3">The OS allocates a drive letter. The drive letter is allocated in order, usually from the C drive, including built-in disk of the managed machine.</td><td>The OS allocates a device file. The device file is allocated in order from the built-in disk.</td></tr>
<tr><td rowspan="3">Deployment</td><td colspan="2">Never connected to a logical disk</td><td colspan="3">The OS allocate a drive letter. The drive letter is allocated in order, usually from the C drive, including built-in disk of the managed machine.</td><td>The OS allocates a device file. The device file is allocated in order from the built-in disk.</td></tr>
<tr><td rowspan="2">Have connected to…</td><td>The same logical disk after distribution</td><td>The same drive letter as the one that has allocated to the partition and volume on the logical disk. *1</td><td colspan="2">The OS allocate a drive letter. The drive letter is allocated in order, usually from the C drive, including built-in disk of the managed machine.</td><td>-</td></tr>
<tr><td>A logical disk that is not the same logical disk after distribution</td><td colspan="3">The OS allocate a drive letter. The drive letter is allocated in order, usually from the C drive, including built-in disk of the managed machine.</td><td>The OS allocates a device file. The device file is allocated in order from the built-in disk.</td></tr>
</table>

*1 To keep the information of the disk, including the signature of the disk and drive letter information, during distributing an image, the same drive letter is allocated after the distribution.

3.6. Configuring Settings for a Virtual Environment

To use a virtual environment, configure settings in advance. This section provides the procedure to build a virtual environment.

3.6.1. Setting Up the VMware Environment

To set up the VMware environment, set up with the following flow:

Reference: For the details of the settings, see product manuals of VMware, Inc.

1. Installing and configuring the following components of vCenter Server:
   Server component (vCenter Server)
   Client component (vSphere Client)
2. Installing and configuring VMware ESX
3. Installing DPM Client and NEC ESMPRO Agent into VMware ESX, and configuring them
4. Configuring OOB Management
5. Starting vSphere Client and logging in
6. Configuring a datacenter and cluster.

Note:

・When managing an environment where Enhanced VMotion Compatibility is enabled in SigmaSystemCenter, note the following points:

・Set a unique name for a datacenter and a cluster in vCenter Server.

・SigmaSystemCenter manages a cluster equivalently to a datacenter. A cluster is displayed as a datacenter on the Web Console.

・A datacenter can be created on vCenter Server from the Web Console. However, SigmaSystemCenter does not support creating a cluster on vCenter Server.

・When using a distributed virtual switch, note the following points:

・Set a unique name for a distributed virtual switch and a distributed virtual port group in vCenter Server.

・When using a distributed virtual switch, do not connect the management NIC of VMware ESX to the distributed virtual switch. Connect the management NIC for communicating with VMware ESX to a standard virtual switch

7. Registering an ESX

3.6.2. Setting Up the Xen Environment

To set up the Xen environment, set up with the following flow:

Reference: For the details of the settings, see product manuals of Citrix Systems, Inc.

1. Installing and configuring XenServer
2. Installing DPM Client and NEC ESMPRO Agent into XenServer, and configuring them
3. Installing DPM Client and NEC ESMPRO Agent into XenServer, and configuring them
4. Installing and configuring XenCenter
5. Starting XenCenter and logging in
6. Configuring Pool
7. Registering XenServer
8. Changing datastore names to a unique name in the system if any local datastore exists

3.6.3. Setting Up the ESXi Environment

To set up an environment to manage ESXi directly, set up with the following flow:

Reference: For details of the settings, see product manuals of VMware Inc.

Note: Free edition of VMware vSphere Hypervisor cannot be managed in SigmaSystemCenter. VMware products with paid licenses are required.

1. Installing VMware ESXi
2. Configuring the host name and IP address
3. Configuring OOB Management
4. Changing datastore names to a unique name from the system if any local datastore exists

3.6.4. Setting Up the Hyper-V Environment

To set up the Hyper-V environment, set up with the following flow:

Reference: For details of the settings, see product manuals of Microsoft Corporation.

1. Installing and configuring Windows Server 2008 or Windows Server 2008 R2
2. Installing and configuring the role of Hyper-V
3. Installing and configuring the failover clustering feature for Hyper-V cluster
4. Installing DPM Client and NEC ESMPRO Agent, and configuring them
5. Configuring OOB Management

Note: A domain environment is needed to set up a clustering environment,

・ To create a large quantity of virtual machines in the Windows Server 2008 R2 environment, expand the range of MAC addresses without overlapping the range of other Hyper-V in advance. OUI reserved for Hyper-V is "00-15-5d". (Hyper-V Manager - Virtual Network Manager - Global Network Settings)

・ Configure the settings of DNS and reverse DNS of a Hyper-V machine properly.

・ If the following conditions are met, apply KB974930.

http://support.microsoft.com/kb/974930

Conditions:

・ Using a cluster environment

・ Using Windows Server 2008 R2 without applying SP1

・ Without using Windows Update

▪ If you use a cluster environment apply the following hotfixes.

(If you apply KB974930, apply it before applying them.)

http://support.microsoft.com/kb/2580360/

http://support.microsoft.com/kb/2563210/

3.7. Configuring DPM

SystemProvisioning uses DPM to install OSs, applications, and patches into managed machines. In addition, SystemProvisioning uses DPM to power on or shut down managed machines. Therefore, the physical machines planned to be managed by SystemProvisioning must be registered to DPM in advance. This section provides the procedures on how to configure the initial settings of DeploymentManager and register managed machines.

Use the Web Console (browser) to operate DPM. For details about how to start the DPM Web Console and configure the initial settings, see Subsection 3.7.1, "Starting DPM Web Console" and Subsection 3.7.4, "Registering a Managed Machine to DPM."

Machines can be registered to DPM both automatically and manually. This manual explains the procedure of automatic registration. For details, see Subsection 3.7.4, "Registering a Managed Machine to DPM."

Reference: When using DPM for the first time, see Chapter 5, "Preparing for DeploymentManager Operation" in *DeploymentManager Installation Guide* and Chapter 2, "Registering Resources in DeploymentManager" in *DeploymentManager Operation Guide*.

3.7.1. Starting DPM Web Console

To start the DPM Web Console, perform the following procedure:

1. Start a Web browser.
2. Enter the following URL in the Web browser address box. Enter the host name or the IP address of the management server into the location of *Host Name*.

   http://*Host Name*/DPM/Login.aspx

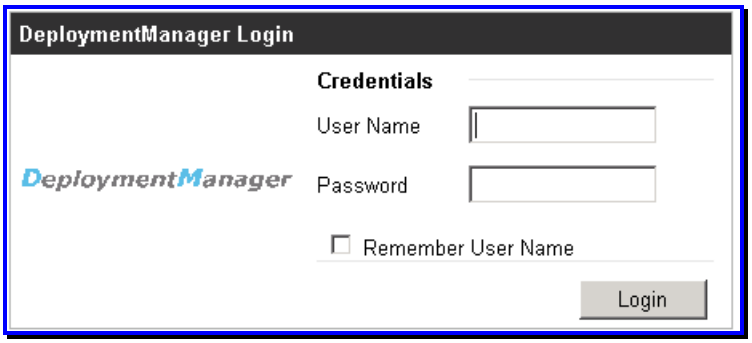
   Note: If the host name includes any character other than the Internet-standard characters, the DPM Web Console may not start. In case of failure to start, specify the IP address in the address box, otherwise the DPM Web Console may not start.

3. The DPM Web Console starts and the **DeploymentManager Login** window appears. For how to login, see Subsection 3.7.2, "Logging into DPM."

3.7.2. Logging into DPM

Log into DPM, and change the setting of the default user.

1. Start the DPM Web Console to display the **DeploymentManager Login** window.



2. Enter the user name and password. (Required)

Note: To log into DPM for the first time, enter the following user name and password:

- User name: admin
- Password: admin

Reference: Be sure to change the password after the first login. For how to change the setting of the user currently logging in, see Subsection 1.1.2, "Account" in *DeploymentManager Reference Guide*.

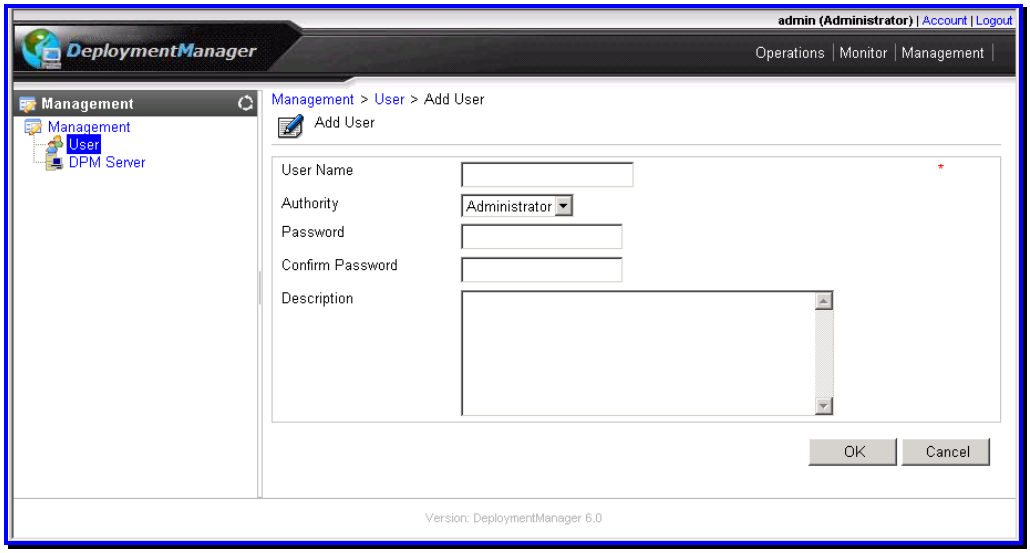
3. Click **Login**.

3.7.3. Adding DPM User

To add a DPM user, perform the following procedure:

1. Start the DPM Web Console.
2. Click **Management** located on the Title bar to switch to the **Management** view.
3. Click **User** from the **Management** tree.
4. **User List** appears on the Main Window.
5. Click **Add User** on the Configuration menu.

6. **Add User** appears on the Main Window.



7. Enter a user name into the **User Name** box. (Required)
8. Select the authority level in the **Authority** list. (Required)
9. Enter the password into both the **Password** box and the **Confirm Password** box. (Required)
10. Click **OK**.

Reference: For details of the setting items, see Subsection 2.3.1, "Add User" in *DeploymentManager Reference Guide.*

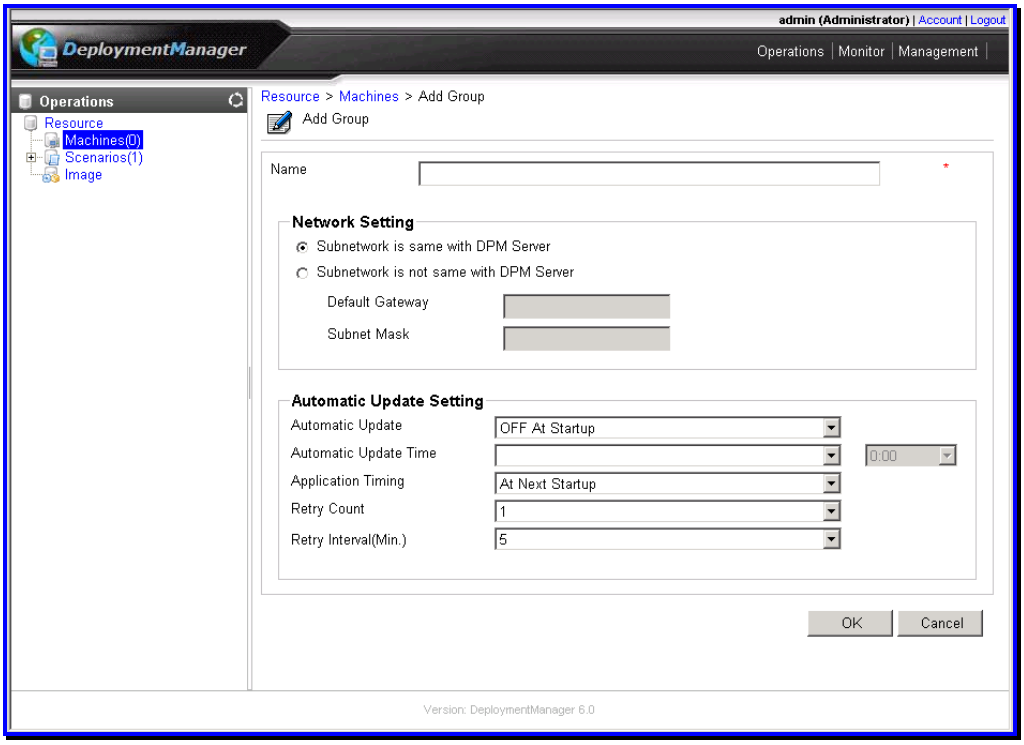
3.7.4. Registering a Managed Machine to DPM

To register a managed machine to DPM, perform the following procedure. For the caution notes on registering virtual machine servers or virtual machines, see Subsection 3.7.5, "Registering a Virtual Machine to DPM" and 3.7.6, "Registering a Virtual Machine Server to DPM."

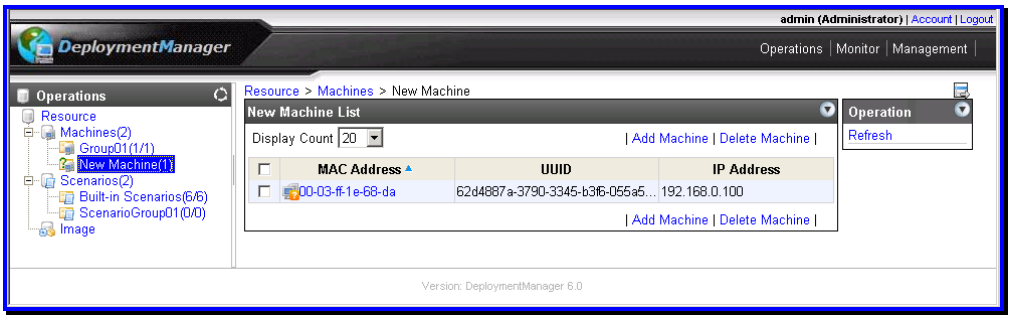
Reference: For more details, see Subsection 3.3.1, "Add Machine Group" and 3.9.2, "Add New Machine" in *DeploymentManager Reference Guide*.

1. Start the DPM Web Console. For how to start the DPM Web Console, see Subsection 3.7.1, "Starting DPM Web Console."
2. Click the **Operations** on the Title bar to switch to the **Operations** view.
3. Create a machine group. If the machine group to which a managed machine is to be registered already exists, skip to the procedure 10.

4. Click **Machines** from the **Resource** tree.
5. **Group List** appears on the Main Window.
6. Click **Add Group** from the Configuration menu.
7. **Add Group** window appears on the Main Window.

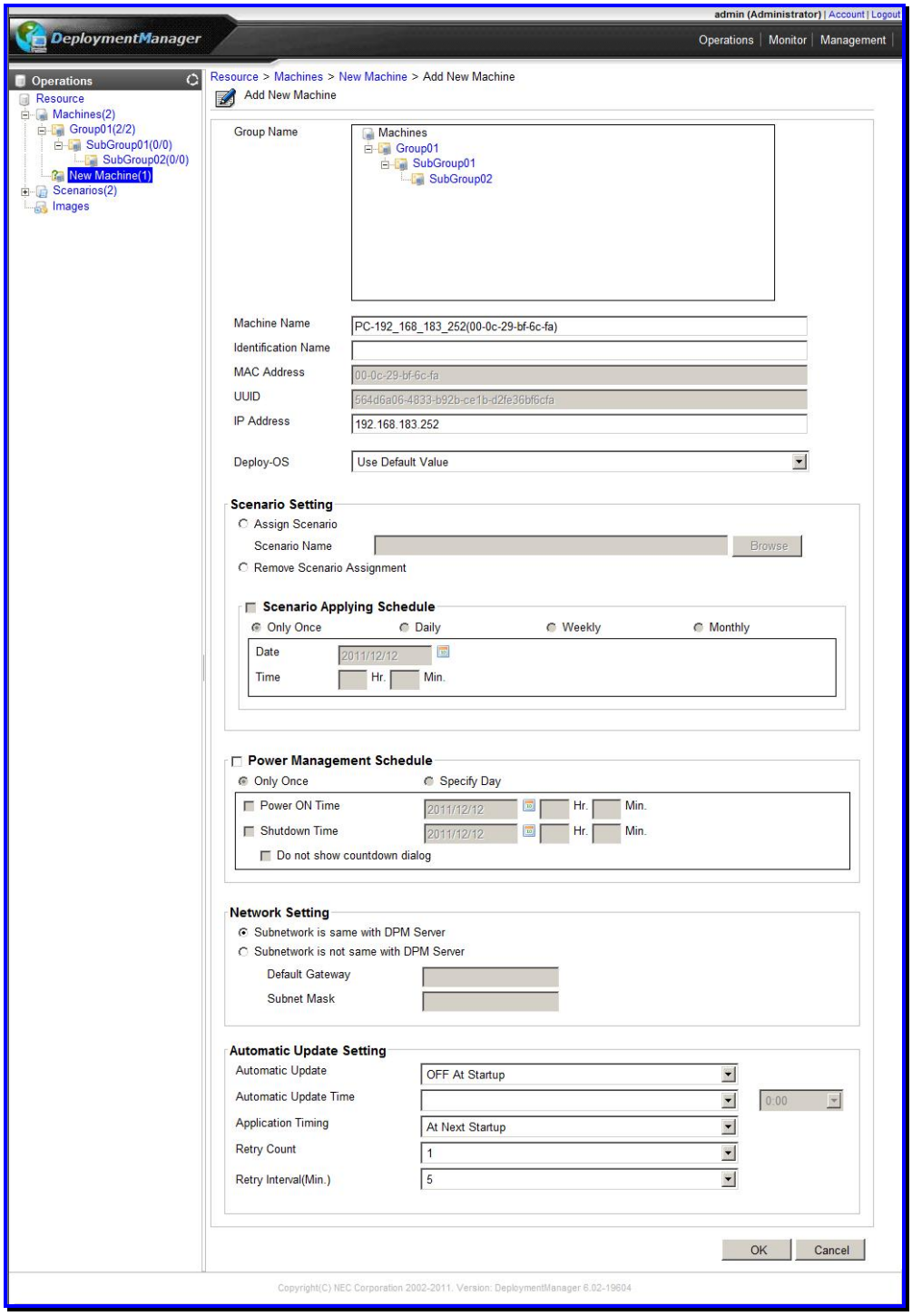


8. Enter a group name into the **Name** box. (Required)
9. Click **OK**.
10. Register a machine. Power on the machine to be registered.
    After a while, **New Machine** appears under the **Resource** tree.
11. Click the **New Machine** under the **Resource** tree.
12. **New Machine List** appears on the Main Window.



13. Select the check box of the machine to be registered, and click the **Add Machine** of the Action menu.

14. **Add New Machine** appears on the Main Window. Confirm that the values are set in the **MAC address** and the **UUID**.



Note: In the following case, UUID is not registered automatically. Be sure to register the UUID manually. If UUID is not registered, the power control from SystemProvisioning might fail.

▪ The PXE boot of the managed machine is not enabled and the OS cannot start for any reason such as OS is not installed yet.

15. Enter each item.

Note: If you set an Identification Name, DPM Web console shows it as the machine name, and it is not changed during the operation. It is shown as the machine name in SystemProvisioning either. When you perform operations that possibly change OS host name such as machine replacing, you are recommended to use an Identification Name.

16. Click **OK**.

3.7.5. Registering a Virtual Machine to DPM

Virtual machines must be registered to DPM under the following cases:

- When installing applications and patches etc., into a virtual machine.
- When using the following functionalities: HW Profile Clone, Differential Clone (other than vCenter Server Management), and Disk Clone (other than vCenter Server Management).
- When dealing with a fault (for example, shutting down a virtual machine through DPM if failure occurs on the virtual machine server).

Reference:

▪ For HW Profile Clone, Differential Clone (other than vCenter Server Management) and Disk Clone (other than vCenter Server Management), set the machine-specific information by using DPM. For details, see Subsection 2.2.2, "Templates" in *SigmaSystemCenter Overview Reference Guide*.

▪ For the max number of the machine groups and the machines that can be managed by DPM, see Subsection 3.3.1, "Add Machine Group" and 3.5.5, "Add Managed Machine" in *DeploymentManager Reference Guide.*

- Registering an already created virtual machine to DPM

  Install the DPM Client to the virtual machine. The virtual machine will then be registered to DPM. Further, perform registration of the virtual machine to an arbitrary group from **New Machine** in DPM Web Console.

- Registering the virtual machine to DPM at the time when the virtual machine is activated

Select any value in the DPM Server list on the setting of VM Model, Group, or Category. By doing this, the virtual machine is registered to DPM automatically at the time when the virtual machine is activated in an operation group (, for example, Allocate Machine, Create and Assign Machine and Register Master Machine). The setting has prior in the order of VM Model, Group, Category.

3.7.6. Registering a Virtual Machine Server to DPM

Virtual machine servers must be registered to DPM under the following cases:

- When installing applications and patches, etc., to a virtual machine server.
- When performing operations that start virtual machine servers such as VM optimized placement, etc.

When registering the virtual machine server to DPM, both the physical MAC address of the NIC that is activated by the Wake On LAN and the UUID must be registered. If a mistaken value is configured, the information of the virtual machine server obtained from the virtual management environment software will not match the information registered in DPM, and then, SystemProvisioning might not recognize the virtual machine server correctly. Because the registration procedure is different according to the system environment, refer to the registration procedure described in this section.

After the registration to DPM, make sure that the registered machine can be powered on and shut down from the DPM Web Console.

＜Registration using the DPM Client＞

- For an ESX environment

Note: For ESXi, this procedure is unavailable because DPM Client cannot be installed.

1. Confirming the physical MAC address

Confirm the physical MAC address that will be activated with the Wake On LAN.

"vmnic0" would usually be the MAC address for the ESX.

- The command to confirm the NIC

```
# esxcfg-vswitch –l
```

- The command to confirm the Physical MAC address (when NIC name is "vmnic0")

```
# ifconfig | grep vmnic0
```

2. Registering the machine to an arbitrary group of DPM

Start the DPM Web Console. Select the group to which the machine to be registered, and select **Add Machine** from the Configuration menu. Enter the machine name (host name) of the virtual machine server into the **Machine Name** box and the MAC address that was confirmed in the procedure 1. Click **OK**.

Note: When entering the host name for the **Machine Name**, make sure that the management server can obtain the IP address of the virtual machine server by name resolution.

3. Installing the DPM Client

Set the firewall to the virtual machine server beforehand, and then install the DPM Client. If DPM Client is already installed on your system, restart the DPM Client service with the following commands:

```
service depagt stop
service depagt start
```

4. Ensuring the registered machine's information

Select the machine that was registered in the procedure 2 on the DPM Web Console. Then, make sure that a value is being set for the MAC address and UUID on the **Machine Detail** window.

For a VMware environment, the procedure of verifying MAC address is necessary because the MAC address of Service Console that will not be activated with Wake On LAN is registered by using the DPM Client.

Note: When the MAC address of the virtual NIC of the virtual machine server's Service Console is registered as a managed machine or **New Machine**, delete the virtual machine server from DPM and re-register the virtual machine server by performing the above procedure.

◆ For the XenServer environment

1. Installing the DPM Client

First configure a firewall on the virtual machine server beforehand, and then install the DPM Client. If DPM Client is already installed on your system, restart the DPM Client service with the following commands:

```
service depagt stop
service depagt start
```

2. Registering the machine to an arbitrary group of DPM

The procedure is the same as the registration of physical machines into a group. See the procedure 10 through 16 in Subsection 3.7.4, "Registering a Managed Machine to DPM."

◆ For the Hyper-V environment

1. Installing DPM Client

No preconfiguration is necessary because the configuration is executed automatically while the installation operation. If DPM Client is already installed on your system, restart the DPM Client service.

2. Registering the machine to an arbitrary group of DPM

The procedure is the same as the registration of physical machines into a group. See the procedure 10 through 16 in Subsection 3.7.4, "Registering a Managed Machine to DPM."

＜Registration using the PXE feature＞

Note: A DHCP server is required for registration using the PXE feature.

1. Setting network booting of the virtual machine server

On BIOS boot order settings, set the order of the NIC which will be network (PXE) booted prior to that of the hard disk, and save the settings.

2. Restarting the virtual machine server

By the initial network booting after restarting, the virtual machine server is registered to DPM and powered off automatically. After a while, **New Machine** appears on the tree view of the DPM Web Console.

3. Registering the virtual machine server to an arbitrary group of DPM

The procedure is the same as the registration of physical machines into a group. See the procedure 10 through 16 in Subsection 3.7.4, "Registering a Managed Machine to DPM."

4. Starting the virtual machine server

5. Installing the DPM Client to the virtual machine server

To install applications and patches to the virtual machine server by using DPM, install the DPM Client. When not planning to install applications and patches, or when planning to use an ESXi environment, the procedure 5 and 6 are unnecessary.

Configure the firewall on the virtual machine server beforehand, and then install the DPM Client. This procedure is not needed if DPM Client is already installed.

6. Verifying the installation of the DPM Client

Verify that the DPM Client has been installed normally. If the installation has normally completed, the OS name is displayed on **Machine Detail** of the registered virtual machine server on the DPM Web Console.

＜Manual Registration＞

1. Verify the MAC address and UUID of the virtual machine server from SystemProvisioning

When the target virtual machine server's icon on the **Resource** tree of the Web Console is clicked, the detailed information of the virtual machine server is displayed on the Main Window. Verify the MAC address and UUID displayed under **Base Information**.

2. Registering the machine to an arbitrary group of DPM

Start the DPM Web Console. Select the group to which the machine is to be registered, and select **Add Machine** from the **Configuration** menu. Enter the machine name (host name) of the virtual machine server into the **Machine Name** box, and enter the MAC address and UUID that were confirmed in the procedure 1 and the IP address of the virtual machine server. Click **OK**.

Note:

▪ When the MAC address of the virtual NIC of the virtual machine server's Service Console is registered as a managed machine or **New Machine**, delete the virtual machine server from DPM and re-register the virtual machine server by performing the above procedure.

▪ Enter the IP address which is used by the virtual machine server to communicate with the management server.

3.8. Setting up a Managed Machine

To set up a managed machine, install OS and configure the network setting beforehand, and then configure the necessary settings with the following procedure:

3.8.1. Installing NEC ESMPRO Agent

Install NEC ESMPRO Agent to a managed machine.

- Windows OS

  Install NEC ESMPRO Agent by using EXPRESSBUILDER attached to a managed machine. For details about how to install, see the document included in EXPRESSBUILDER.

- Linux OS

  Install NEC ESMPRO Agent by using EXPRESSBUILDER attached to a managed machine. For details about how to install, see the document included in EXPRESSBUILDER.

- VMware ESX

  Install NEC ESMPRO Agent for VMware.

- VMware ESXi

  Installation of NEC ESMPRO Agent is unnecessary.

- Citrix XenServer

  Install NEC ESMPRO Agent for XenServer.

- Microsoft Hyper-V

  Install NEC ESMPRO Agent by using EXPRESSBUILDER attached to a managed machine.

3.8.2. Installing DPM Client

- Windows OS / Linux OS / VMware ESX / Citrix XenServer / Microsoft Hyper-V

  Install DPM Client from the *SigmaSystemCenter 3.1 DVD-R.* For details about how to install, see Section 2.6, "Installing Managed Machine Component" in *SigmaSystemCenter Installation Guide.*

- VMware ESXi

  Installation of DPM Client is unnecessary.

3.8.3. Configuring Managed Machine to Send Failure Event

To alert a management server to a failure event from a managed machine, the following two ways are provided: *Manager Report (SNMP)* and *Manager Report (TCP/IP In-Band)*. Either of them must be configured. See Section 3.9, "Configuring Settings for Sending Failure Events From the Managed Machine" to configure the necessary setting for the machines to be monitored.

If NEC ESMPRO Agent is not installed, PET will be used to alert a management server. Any setting is not required for this functionality.

3.8.4. Configuring the Setting for OOB Management

To use OOB Management, configure the following setting. For details of the OOB Management feature and functionality, see Section 3.10, "Preparing for the Use of Out-of-Band (OOB) Management."

- Configuring the IP address on BMC and creating a user with administrator privileges

  Set the IP address for connecting to the managed machine's BMC by using SigmaSystemCenter, and create a user with administrator privileges.

  See Subsection 3.10.1, "Configuring IP Address of BMC" and 3.10.2, "Creating Administrator Account in BMC" to configure the necessary setting for BMC.

- Configuring the alert destination of PET and Alert Level

  If NEC ESMPRO Agent is not installed in the managed machine, configure the setting for sending PET from BMC to the management server. See Subsection 3.10.2, "Creating Administrator Account in BMC" to configure the necessary setting for BMC.

  If NEC ESMPRO Agent is installed in the managed machine, PET is not sent and only NEC ESMPRO Agent alerts the management server. Therefore, this setting is unnecessary.

- Enabling Dump

  Configure the setting for enabling Dump. See Subsection 3.10.4, "Enabling Dump" to configure the necessary setting for OS running on the managed machine.

- Enabling ACPI Shutdown

  Configure the setting for enabling ACPI Shutdown. See Subsection 3.10.5, "Enabling ACPI Shutdown" to configure the necessary setting for OS of the managed machine.

- Configuring Serial Over Lan (SOL)

  Configure the setting for connecting to the managed machine's serial console. See Subsection 3.10.6, "Configuring Serial Over Lan (SOL)" to configure BIOS and OS of the managed machine.

3.8.5. Configuring the Setting for Monitoring Performance by System Monitor - Performance Monitoring Services

Preconfiguration is required for the machines to be monitored by System Monitor - Performance Monitoring Services. Because the preconfiguration procedure is different according to the condition of the machine to be monitored, see the following instructions to configure the appropriate setting for the machines to be monitored:

Reference: For details of the settings on a monitored machine for the performance data collection by System Monitor - Performance Monitoring Services, see Section 1.7, "Connecting to Monitored Machines" in *System Monitor - Performance Monitoring Services User's Guide.*

- If the machine to be monitored is running Windows:
  - You need to prepare a user account for System Monitor - Performance Monitoring Services to access to the machine. The account must belong to the Administrators group or Performance Monitor Users group of the machine.
  - If the OS of the monitored machine is Windows Vista, Windows 7, or Windows Server 2008 and you are going to use an account belongs to an Administrators group, you need to configure a security policy so that the Admin Approval Mode will be disabled. However, you do not need to configure a security policy for domain users.
  - You need to configure a security policy so that the monitored machine can recognize an account used by System Monitor - Performance Monitoring Services when accessing to the machine as its local account. If the OS of the machine is Windows XP, change the default settings because the performance data collection cannot be executed by default.
  - If a firewall is installed, open the ports to be used when accessing to the machine.
  - Change settings of the following services, **Server**, **Remote Registry**, on the monitored machines, so that they will be automatically activated when the machine starts up. If the OS of the monitored machine is Windows Vista or Windows 7, change the defaults settings because the performance data collection cannot be executed by default.

- If the OS of the monitored machine is Windows 2000 server, run the following command on the monitored machine to change the default settings because either "Disk Space (MB)", "Disk Space Ratio (%)", the Performance Index, or "LogicalDisk", the Category, cannot be executed by default.

```
DISKPERF –Y
```

-Y	Configure the system so that it will start all the disk performance counter when restarts.

◆ If the machine to be monitored is running Linux or KVM:

- You need to prepare a user account for System Monitor - Performance Monitoring Services to access to the machine.
- To connect the machine to telnet, install Telnet Server and enable the service. If a firewall is installed, exempt telnet communications from firewall blocking.
- To connect the machine with SSH, enable SSH.

◆ If the machine to be monitored is VMware ESX, ESXi

- You need to prepare a user account for System Monitor - Performance Monitoring Services to access to the machine.
- Configure a role that has Read Only permissions or greater by using Virtual Infrastructure Client or vSphere Client.
- If a firewall is installed, exempt SSL communications from firewall blocking.

◆ If the machine to be monitored is XenServer

- You need to prepare a user account for System Monitor - Performance Monitoring Services to access to the machine.
- If a firewall is installed, exempt SSL communications from firewall blocking.

3.8.6. Setting up to Use the Management Controller Management on NEC ESMPRO Manager

If you want to use the Management Controller management in NEC ESMPRO Manager, you need to set up the BMC's IP address and the authentication key for the managed machine.

Because the Management Controller management of NEC ESMPRO Manager is not added through SigmaSystemCenter, you need to add the Management Controller management to NEC ESMPRO Manager before beginning operation if you want to use the Management Controller management on NEC ESMPRO Manager.

For how to add the Management Controller management to NEC ESMPRO Manager, see *NEC ESMPRO Manager Ver.5 Setup Guide*.

http://www.58support.nec.co.jp/global/download/index.html

Note: Set the authentication for BMC to the same value between the active machine and the spare machine if you use the Management Controller management on NEC ESMPRO Manager.

If the RAID system management and NEC ExpressUpdate management are set up on the managed machine, the Management Controller management is added to NEC ESMPRO Manager along with the machine registration on SigmaSystemCenter.

3.9. Configuring Settings for Sending Failure Events From the Managed Machine

To alert a management server to a failure event from a managed machine, the following two ways are provided: *Manager Report (SNMP)* and *Manager Report (TCP/IP In-Band)*. Either of them must be configured. The default setting of NEC ESMPRO Agent is Manager Report (SNMP). If the same alert destination is specified for both Manager Report (SNMP) and Manager Report (TCP/IP In-Band), two same events will be sent.

Configure the setting for sending failure events from a managed machine by performing the following procedure:

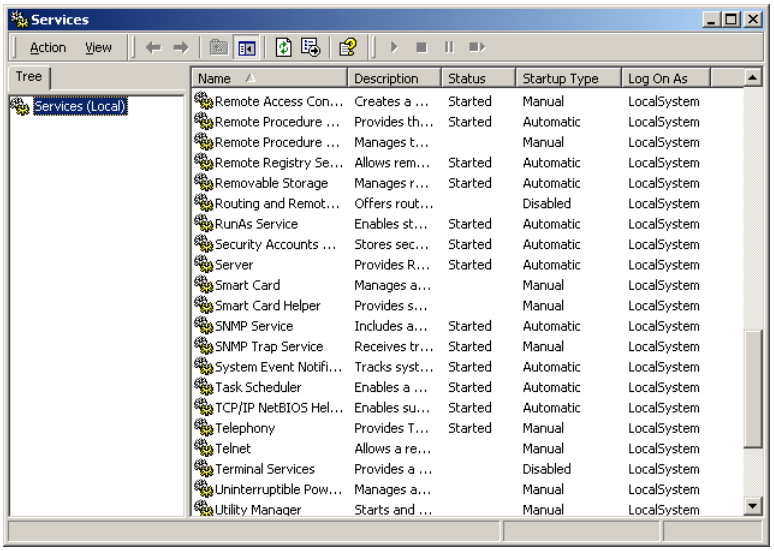
3.9.1. Configuring the Setting on a Machine Running Windows

To configure for a Windows machine to send a failure event alert, configure the setting following the procedure:

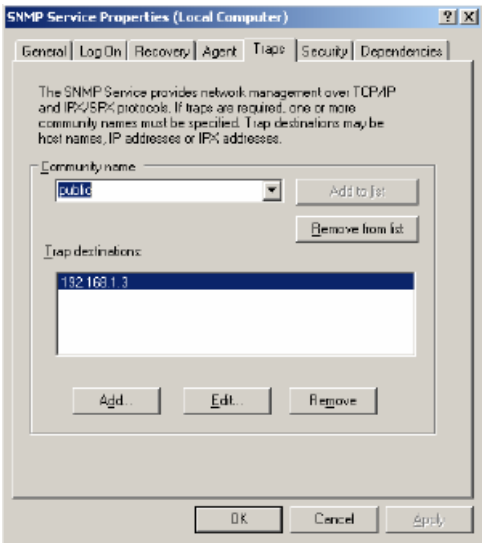
Note: The alert destination of Manager Report is not configured by installing NEC ESMPRO Agent. You need to configure the alert manager manually.

- SNMP Trap

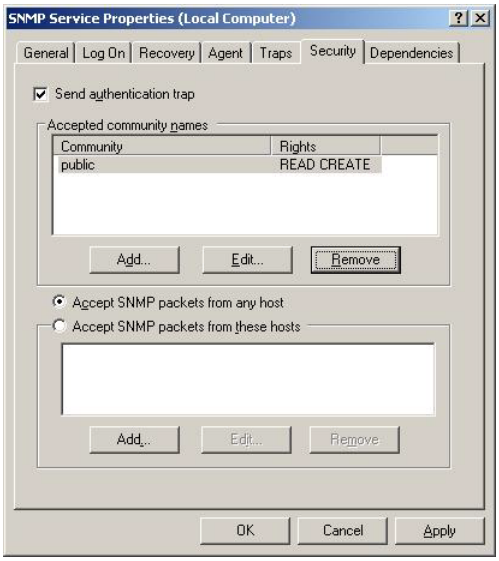
1. Install SNMP.
2. Click the **Start** menu, and click **Control Panel**. From Control Panel, double-click **Administrative Tools**. From Administrative Tools, double-click **Services** to start the Services Snap-in.


Services
Action View
Tree
Services (Local)
Name Description Status Startup Type Log On As
Remote Access Con... Creates a ... Started Manual LocalSystem
Remote Procedure ... Provides th... Started Automatic LocalSystem
Remote Procedure ... Manages t... Manual LocalSystem
Remote Registry Se... Allows rem... Started Automatic LocalSystem
Removable Storage Manages r... Started Automatic LocalSystem
Routing and Remot... Offers rout... Disabled LocalSystem
RunAs Service Enables st... Started Automatic LocalSystem
Security Accounts ... Stores sec... Started Automatic LocalSystem
Server Provides R... Started Automatic LocalSystem
Smart Card Manages a... Manual LocalSystem
Smart Card Helper Provides s... Manual LocalSystem
SNMP Service Includes a... Started Automatic LocalSystem
SNMP Trap Service Receives tr... Started Manual LocalSystem
System Event Notifi... Tracks syst... Started Automatic LocalSystem
Task Scheduler Enables a ... Started Automatic LocalSystem
TCP/IP NetBIOS Hel... Enables su... Started Automatic LocalSystem
Telephony Provides T... Started Manual LocalSystem
Telnet Allows a re... Manual LocalSystem
Terminal Services Provides a ... Disabled LocalSystem
Uninterruptible Pow... Manages a... Manual LocalSystem
Utility Manager Starts and ... Manual LocalSystem

3. Right-click **SNMP Service**, and then click **Properties**.
4. The **SNMP Service Properties** dialog box appears. Click the **Trap** tab.
5. Select the SNMP community name specified in the Environment Setting in the **Community name** list, the default name is "public," and then add the host name or IP address of SystemProvisioning.



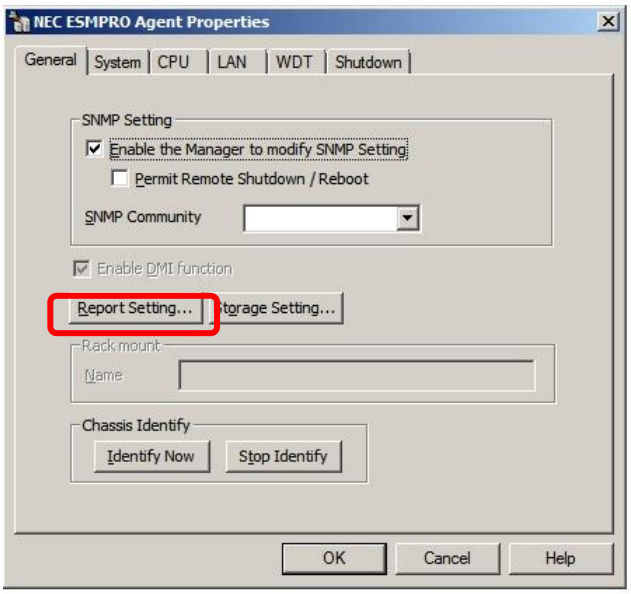
6. Click the **Security** tab. Configure **Read Create** or **Read Write** for the **Community Rights**.



7. Click **OK**.

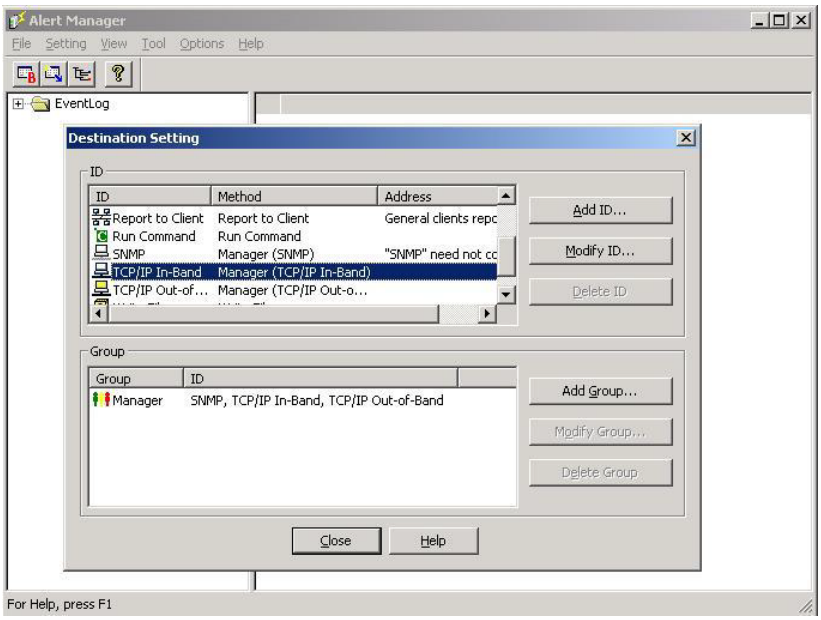
◆ Manager Report (TCP/IP In-Band)

1. Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **NEC ESMPRO Agent**.
2. The **NEC ESMPRO Agent Properties** dialog box appears.
3. Click the **General** tab. Click **Report Setting**.



4. The **Alert Manager** dialog box appears.
5. From the **Setting** menu, select **Destination Setting**.

6. The **Destination Setting** dialog box appears. For the configuration method of alert destination, click the **Help** menu, from the Online Help, click **Outline of setting**, click **Alert Manager Setting tool**, click **Destination Setting**, click **Manager (TCP/IP In-Band) Setting**, and see the help.



7. Close the **Alert Manager** and click **OK** on the **NEC ESMPRO Agent Properties** dialog box.

3.9.2. Configuring the Setting on a Machine Running Linux

To configure for a Linux machine to send a failure event, perform the following procedure:

Note: The alert destination of Manager Report is not configured by installing NEC ESMPRO Agent. You need to configure the alert manager manually.

◆ SNMP Trap

1. Log in as a root user.
2. Start the service under the following path.
   /opt/nec/esmpro_sa/bin/ESMamsadm
3. Select **Base Setting** and press **Enter**.
4. Select **Manager (SNMP)** and press **Enter**.
5. Select **Enable the function**. When selected, it is marked with an asterisk "*."
6. If needed, configure an IP address in **Trap Destination IP**.

◆ Manager Report (TCP/IP In-Band)

1. Log in as a root user.
2. Start the service under the following path.
   /opt/nec/esmpro_sa/bin/ESMamsadm
3. Select **Base Setting** and press **Enter**.
4. Select **Manager (TCP_IP In-Band)** and press **Enter**.
5. Select **Enable the function**. When selected, it is marked with an asterisk "*."
6. On the ESMamsadm initial screen, select **Destination ID Setting** and press **Enter**.
7. Select **TCP_IP IN-BAND**, and click **Modify**.
8. Select **Address**, and click **Enter**.
9. If needed, specify an IP address and port number of the destination.

◆ Setting for receiving alerts of CLUSTERPRO events

If you want the managed machine to send events of CLUSTERPRO, you need to monitor events that CLUSTERPRO registers to Syslog.

Configure the monitored events of CLUSTERPRO in the Control Panel.

1. Log in as a root user.
2. Start the service under the following path.
   /opt/nec/esmpro_sa/bin/ESMamsadm
3. Select **Syslog Events Setting** and press **Enter**.
4. Select **ON** on the **Operation on Source:**. When selected, it is marked with an asterisk "*." Select **Add…** and press **Enter**.
5. Configure the following event sources on the displayed **Add Syslog Item**.

Note: Monitoring events is executed with the strings entered in the Keyword. Therefore, enter the exact strings including upper or lower case and spaces. Note that the configuration will not work if you enter long strings.

- With CLUSTERPRO 3.x or earlier

Item	Setting
Source	CLUSTERPRO
Event ID	c00008a4
Keyword	<type:#nm><event:#2>#Server
Trap Name	Server down

Item	Setting
Source	CLUSTERPRO
Event ID	c0005217
Keyword	<type:#rm><event:#9>#Monitor#rr..rr#failed
Trap Name	Public LAN error

A sharp sign in the keyword setting represents a single-byte space.

- With CLUSTERPRO X 1.0 or greater

Item	Setting
Source	CLUSTERPRO#X
Event ID	40000002
Keyword1	<type: #nm><event: #2>#Server
Keyword2	has#been#stopped.
Trap Name	Server down

A sharp sign in the keyword setting represents a single-byte space.

3.10. Preparing for the Use of Out-of-Band (OOB) Management

Out-of-Band (OOB) Management is the functionality to communicate with Baseboard Management Controller (BMC) — EXPRESSSCOPE Engine in Express 5800 Series servers — implemented on a managed machine to execute power control and maintenance operation.

This section explains how to configure the necessary setting for using OOB Management. Configure the setting for the management server's OS and managed machines' BMC and OS by performing the procedure in the following subsections.

After configuring the setting, the features of OOB Management described below will be available:

- Information acquisition from BMC

  Sensor information can be acquired from the BMC. The information is used for checks on the power On / Off state and fault diagnosis.
- Power control through BMC

  Power control through BMC can be executed manually and by using policy actions. Power OFF and ACPI Shutdown also can be controlled.

  When planning to use the Policy Action: *Action for Machine / Replace machine(Immediate Power OFF)*, be sure to configure the necessary setting for OOB Management, otherwise, the replacement process will fail.
- LED control through BMC

  LED control through BMC can be executed manually and by using policy actions.
- Dump control through BMC

  Dump control through BMC can be executed manually.
- Serial Over Lan (SOL) connection through BMC

  Remote access to serial console through BMC will be available. Serial console operations while setting BIOS, starting OS and operating the machine can be executed.

Note: OOB Management is available only for the managed machine with BMC and supports Remote Management Control Protocol (RMCP) which is IPMI's communication protocol.

3.10.1. Configuring IP Address of BMC

To use OOB Management, set the IP address of BMC. SigmaSystemCenter will connect to this IP address.

Reference: For Express5800 series server, refer to Section 2, "Configuring the Host System" in *EXPRESSSCOPE Engine 2 User's Guide* or *EXPRESSSCOPE Engine 3 User's Guide* and configure BMC management LAN.

For SIGMABLADE Express5800 series, you can see the all implemented blade server's IP addresses by using EM web console. For details, refer to Chapter 4, "Using Web Console Feature" of *N8405-043 EM Card User's Guide*.

3.10.2. Creating Administrator Account in BMC

Create an administrator account to connect to BMC from SigmaSystemCenter.

Reference: For Express5800 series server, refer to the section 5, "Using Remote Management" in *EXPRESSSCOPE Engine 2 User's Guide or EXPRESSSCOPE Engine 3 User's Guide* and configure user account.

3.10.3. Configuring Alert Destination of PET and Alert Level

Configure to send PET from the BMC to a management server.

According to the version of EXPRESSSCOPE Engine, configure the settings with the following procedure.

Note: The PET setting is unnecessary for a managed machine in which NEC ESMPRO Agent is installed. PET is not sent even though you configure; only notifications from NEC ESMPRO Agent will be issued.

If the PET setting is configured for a managed machine in which NEC ESMPRO Agent is installed, both NEC ESMPRO Agent's report and PET might be sent depending on the timing when hardware failure occur. Even in that case, the OOB Management event triggered by PET does not occur on the machine managed by NEC ESMPRO Agent

Reference: For Express5800 series server, refer to *EXPRESSSCOPE Engine 2 User's Guide* or *EXPRESSSCOPE Engine 3 User's Guide*.

- For EXPRESSSCOPE Engine 2

  Launch the *EXPRESSBUILDER DVD-ROM*. From the System Management, perform the following procedure. This procedure is described by exemplifying the case of setting LAN1 for the PET sending setting.

1. Insert the *EXPRESSBUILDER DVD-ROM* into the DVD drive and restart the machine.
2. Start the System Management. Click the Tool menu (Normal Mode), and click the System Management. Or, click the Tool menu (Normal Mode), click the Maintenance Utility, and click System Management.

Note: The menu is different on some machine types. In that case, see the machine's manuals.

3. Select Configuration from Set System management Parameters and select New or Change.
4. Select **Common** on the displayed menu.
5. Select **BMCCommon** and configure the setting as follows:
   1. Input "public" in the **Community Name** box.
   2. Select **Enable** in the **Alert**.
   3. Select **All** in the **Alert Process**.
   4. Select Level 5 or Level 6 in the Alert Level.
   5. Select Enable in the remote control (LAN1).
6. Return to the previous menu.
7. Select LAN1 (Alert).
   1. Configure the **Alert Receiver/Management PC(1)** as follows:
   2. Select **Enable** in the **Alert**.
   3. Input the IP address of the management server in the **IP Address** box.
8. Return to the previous menu.
9. Select **OK**.
10. End the menu.

◆ For EXPRESSSCOPE Engine 3

Login to EXPRESSSCOPE Engine of managed server by Web browser and perform the following procedure. This procedure is described by exemplifying the case of setting Alert Receiver1 for the PET sending setting.

1. Login to EXPRESSSCOPE Engine 3 by Web browser.
2. Click Configuration tab.
3. Click **BMC** - **Alert** - **SNMP Alert** in the menu tree in left pane.
4. Click **Edit** at the bottom of main pane and perform the following procedure.
   1. Enable **Alert**.
   2. Input "**public**" in the **Community Name** box.
   3. Check **All Alert Receiver** radio button at Alert Progress.
   4. Check **Alert Receiver IP Address** check box of **Alert Receiver1** and enter the management server's IP address.

5. Select Error, Warning, and Information from **Alert Level** drop down list.

5. Click **Apply** at the bottom of main pane.

3.10.4. Enabling Dump

Dump can be executed through the managed machine's BMC from a management server by using SigmaSystemCenter.

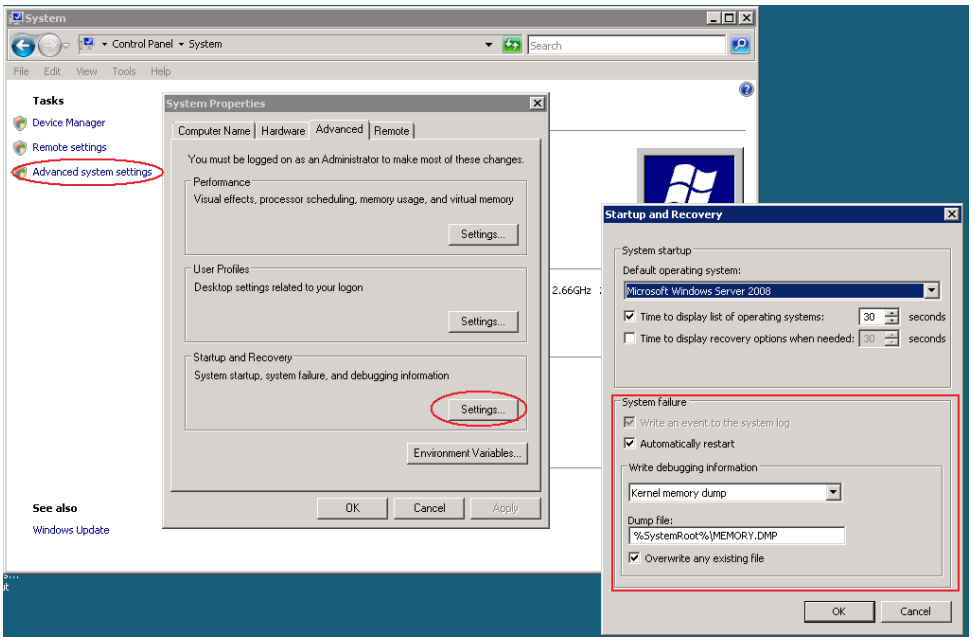
To enable Dump operation, configure the setting for the OS running on a managed machine. This subsection provides the procedure for configuring the Dump setting by exemplifying the case of Windows Server 2008.

Note:

▪ For some versions of OSs, such as Windows which has many versions, the following procedure might require changes in some part. In this case, refer to the product manuals to perform the procedure, for the Windows OS and for other OSs.

▪ Dump is not supported on either VMware ESX, ESXi or XenServer.

1. Click the **Control Panel** from the **Start** menu.
2. Click the **System** on the **System and Maintenance**. (With the classic display, double click on the **System**.)
3. Click **Settings...** under the **Startup and Recovery** on the **Advanced system settings** tab.
4. Change the setting of the items under the **System failure** and click **OK**.



5. Select **Run…** from the **Start** menu and input "regedit" in the **Open** box. Click **OK**

6. Registry editor is activated. Create the entry for the subkey below:
   subkey:
   HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\CrashControl
   entry:
   NMICrashDump=1 (DWORD)
7. End the registry editor.
8. Restart Windows.

Note: Depending on the situation when the dump operation occurs, Windows may restart regardless of the setting.

3.10.5. Enabling ACPI Shutdown

To enable ACPI Shutdown operation, configure the setting for the OS running on a managed machine. This subsection provides the procedure for configuring the ACPI Shutdown setting by exemplifying the case of Windows Server 2008.

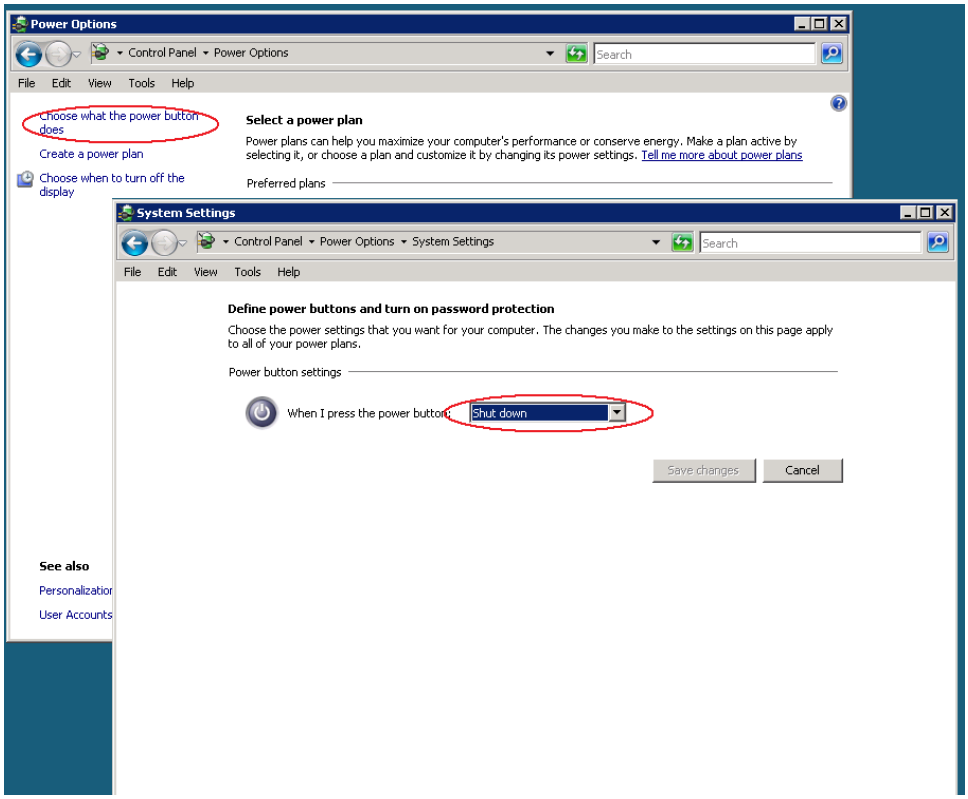
Note:

▪ For some versions of OSs, such as Windows which has many versions, the following procedure might require changes in some part. In this case, refer to the product manuals to perform the procedure, for the Windows OS and for other OSs.

▪ The ACPI shutdown is not supported on any of VMware ESX, ESXi or XenServer.

1. Click the **Control Panel** from the **Start** menu.
2. Double click on the **Power Options**.
3. Click the **Choose what the power button does**.

4. Select the shutdown in the **When I press the power button** list and click **Save changes**.


Power Options
Control Panel ▸ Power Options
Search
File Edit View Tools Help
Choose what the power button does
Create a power plan
Choose when to turn off the display
Select a power plan
Power plans can help you maximize your computer's performance or conserve energy. Make a plan active by selecting it, or choose a plan and customize it by changing its power settings. Tell me more about power plans
Preferred plans
System Settings
Control Panel ▸ Power Options ▸ System Settings
Search
File Edit View Tools Help
Define power buttons and turn on password protection
Choose the power settings that you want for your computer. The changes you make to the settings on this page apply to all of your power plans.
Power button settings
When I press the power button:
Shut down
Save changes
Cancel
See also
Personalizatior
User Accounts

Note: Be sure to select the shutdown in the **When I press the power button** list. If the others are selected, it might not work properly.

5. From the **Start** menu, Click **Administration tool** and **Local Security Policy**.
6. Click **Local Policy** and click **Security Option**. By double clicking on the **Shutdown: Allow system to be shut down without having to log on**, the dialog will appear. Change **Enabled** on the dialog.

3.10.6. Configuring Serial Over Lan (SOL)

Configure the BIOS and BMC setting and the serial console setting of each OS so that BMC can redirect the data output from the managed machine's serial port through LAN.

The following information is common to all the settings: the Express5800 series server's SOL redirection uses the number 2 port of the serial port as the serial port setting. The recommended value of Baud Rate is 19.2Kbps.

For the Express5800 series server, configure them with following procedures according to the version of EXPRESSSCOPE engine.

- For EXPRESSSCOPE Engine 2

  To operate the BIOS screen with the SOL console, configure the following setting on BIOS:

  The procedure is explained below by exemplifying the case of Express5800/B120a's BIOS:

  1. Start the target server.
  2. While starting the target server, press **F2** to launch BIOS set up menu.
  3. Open the **Server** menu.
  4. Select the **Console Redirection**.
  5. Change the setting as follows:

Name	Value
BIOS Redirection Port	Serial Port B
Baud Rate	19.2K (Default)
Flow Control	CTS/RTS (Default)
Terminal Type	PC ANSI
Continue Redirection after POST	Enabled (Default)
Remote Console Reset	Enabled

Reference: For details of the BIOS setting, see user's guides of Express server.

Note: If the ACPI Redirection Port item exists, the setting has not to be changed.

- For EXPRESSSCOPE Engine 3

  Login to EXPRESSSCOPE Engine of the managed server, and set up System BIOS and redirection (LAN) in the Configuration tab.

  1. Login to EXPRESSSCOPE Engine 3 by the Web browser.
  2. Click **Configuration** tab.
  3. Click **System BIOS** in the menu tree in the left pane.

4. Click **Edit** at the bottom of the main pane to set **Console Redirection** Setting as follows:

Name	Value
BIOS Redirection Port	Serial Port B
TerminalType	PC-ANSI
Baud Rate	19200
Data Bits	8 (Default)
Parity	None (Default)
Stop Bits	1 (Default)
Flow Control	Hardware RTS/CTS (Default)
Continue C.R. after POST	Enabled (Default)

5. Click **Apply** at the bottom of the main pane.
6. Click **BMC** - **Miscellaneous** in the menu tree in the left pane.
7. Click **Edit** at the bottom of the main pane to set **Management Software** as follows:
   1. Click **Enabled** radio button at **ESMPRO Management** to display **Redirection (LAN)** setting.

      Note: Re-select the appropriate radio button at **ESMPRO Management** for the management of ESMPRO after checking **Redirection (LAN)** to Enabled.

      If you would re-check Disable radio button at **ESMPRO Management**, the radio button of **Redirection (LAN)** is never turned to **Disable**.

   2. Click **Enabled** radio bottom at **Redirection (LAN)**.
8. Click **Apply** at the bottom of the main pane.

◆ Configuring the setting for Windows Server 2003

Configure the setting for Windows Server 2003 by using *Bootcfg.exe* command.

The procedure is as follows:

1. Log into the managed machine as a user with Administrator privileges, and open a command prompt.
2. Run the following command on the command prompt:

```
> Bootcfg /EMS ON /PORT COM2 /BAUD 19200 /ID 1
```

3. Restart the managed machine.

Reference: For details of Bootcfg.exe command, see the following page issued by Microsoft Corporation:

http://technet.microsoft.com/en-us/library/cc739012%28WS.10%29.aspx

- Configuring the setting for Windows Server 2008 and Windows Server 2008 R2

  For Windows Server 2008 and Windows Server 2008 R2, use *bcdedit.exe* command to configure the setting.

  The procedure is as follows:

  1. Log into the managed machine as a user with Administrator privileges, and open a command prompt.
  2. Run the following command on the command prompt:

     ```
     > bcdedit /emssettings EMSPORT:2 EMSBAUDRATE:19200
     > bcdedit /ems on
     ```

  3. Restart the managed machine.

  Reference: For details of bcdedit.exe command, see the following page issued by Microsoft Corporation:

  http://msdn.microsoft.com/en-us/library/ff542282.aspx

- Configuring the setting for VMware ESX

  For VMware ESX, configure the VMkernel setting and the Service Console Linux kernel setting.

  The procedure is explained below by exemplifying the case of VMware ESX 4.1.

  1. Configure the setting for the service console.
     1. Log into the service console of the managed machine.
     2. Copy the setting of *grub.conf* for backup. If a problem occurs with working, restore the backup.

        ```
        > cp /boot/grub.conf /boot/grub/grub.conf-backup
        ```

     3. Configure /boot/grub/grub.conf as follows.

        Add the following kernel option to the kernel line:

        ```
        console=ttyS1,19200 console=tty0
        ```

2. Configure the setting for VMkernel.
   1. Edit the detail setting as follows by using VI Client:

```
Misc.LogToSerial = 1
Misc.SerialBaudRate = 19200
VMKernel.boot.logPort = 2
```

Reference: For details of the setting, see the following knowledge base issued by VMware, Inc.
http://kb.vmware.com/kb/1003900

Note: VMware ESX does not support console operation and only outputs logs.

◆ Configuring the setting for XenServer

To configure the setting for XenServer, edit the boot menu option on XenServer.
The procedure is explained below by exemplifying Ver.5.5.

1. Log into the managed machine.
2. Copy */boot/extlinux.conf* as backup in advance. If a problem occurs with working, restore the backup.
3. Edit /boot/extlinux.conf as follows:
   - Change the line of *default* from *default xe* to *default xe-serial*.
   - Change the items in the line of *append* in *xe-serial boot section label* as follows:
     - From *com1=115200* to *com2=19200*
     - From *console=com1* to *console=com2*
     - From *console=ttyS0,115200n8* to *console=ttyS1,19200n8*
4. Restart the managed machine.

Reference: For details of the setting, see the following knowledge base issued by Citrix Systems, Inc.:
http://support.citrix.com/article/CTX123116

3.11. Creating a Scenario in DPM

Create scenarios necessary for operations in SigmaSystemCenter.

This section explains the flow of creating a restore scenario, taking a typical example:

- Operation with backup / restore

  Create a restore scenario that restores the backup image which is made by backup operation.

  The restore scenario is used in the restoration operation that restores the image of a managed machine backed up in advance to a spare machine when a failure occurs.

- Operation with OS installation by disk duplication

  Create a restore scenario that restores the backup image which is made by backup operation after deleting the machine's specific information.

  If one master machine is set up and an image of the master machine is cloned, or duplicated, to other machines, multiple machines with the same configuration can be set up, which is used in the following operations: Allocate Machine, Scale Out, Replace Machine, and Change Machine Usage.

  When creating a virtual machine with HW Profile Clone method, SystemProvisioning creates an empty VM, a virtual machine without OS, based on a HW Profile Clone template, and then, installs OS, applications, and the specific information using the DPM OS installation by disk duplication.

3.11.1. Operation with Backup / Restore

The flow of creating a restore scenario is as follows:

1. **Setting up a master machine**

   Set up a managed machine to be the source of a backup. This machine is called the "master machine."

2. **Creating a disk duplication data file**

   Create a disk duplication data file of the master machine.

   For the procedure, see Section 5.4, "Creating a Setup Parameter File" in *DeploymentManager Reference Guide*.

3. **Creating a scenario for backup**

   Create a backup scenario.

   See Subsection 3.11.4, "Creating a Backup Scenario File."

4. **Backing up the master machine**

   Save the backup of the master machine using the backup scenario from DPM Server.

5. **Creating a restore scenario**

   Create a scenario for restoring the backup image. See Subsection 3.11.5, "Creating a Restore Scenario File."

For a restoration operation that installs the backup image to a spare machine when a failure occurs, register this restore scenario as distribution software of SystemProvisioning.

3.11.2. Operation with OS Installation by Disk Duplication

The flow of creating a restore scenario is as follows:

Reference: For details of the image deployment using DeploymentManager, see Section 1.3, "About Image Deployment" in *SigmaSystemCenter Overview Reference Guide*.

1. **Setting up a master machine**

   Set up a managed machine to be the source of a backup. This machine is called the "master machine."

2. **Creating a disk duplication data file**

   Create a disk duplication data file of the master machine.

   When distributing a restore scenario, SystemProvisioning creates a disk duplication data file of the machine to distribute the restore scenario by using the information of the master machine's disk duplication data file saved in DPM Server and the information of the host setting and host profile specified in SystemProvisioning.

   For the procedure, see Section 5.4, "Creating a Setup Parameter File" in *DeploymentManager Reference Guide*.

Note:

▪ Windows parameter file (Express) and Windows parameter file are prepared as a disk duplication data file for Windows Server 2008, Windows Vista, and Windows 7. For the conditions for using each of them, see Subsection 3.3.1, "Creating a Master Image" in *DeploymentManager Operation Guide*.

▪ If both Windows parameter file (Express) and Windows parameter file exist for the same master machine, Windows parameter file is not used in operations because Windows parameter file (Express) has the priority over Windows parameter file. To use Windows parameter file, delete Windows parameter file (Express) if it exists. For the procedure, see Section 5.6, "Delete Package" in *DeploymentManager Reference Guide.*

If an unintended parameter file is used, the message appears on the command prompt window during the processing to prompt you to restart the managed machine. For details, see Subsection 3.3.4, "Precautions/Other" in *DeploymentManager Operation Guide.*

3. Creating a backup scenario

If the OS installation by disk duplication fails in the procedure 5 or after, the master machine cannot be recovered.

Therefore, back up for the master machine before this task is performed.

See Subsection 3.11.4, "Creating a Backup Scenario File."

4. Backing up the master machine

Take a backup of the master machine before running Sysprep, and save the image.

5. Deleting the master machine's specific information

For Windows machines, use Sysprep.

For Linux machines, use LinuxRepSetUp offered by DPM.

See Subsection 3.11.3, "Preparing for Backing up the Master Machine."

6. Creating a backup scenario

Create a scenario for backing up the master machine after deleting its specific information.

Note: In order to prevent the master machine on which Sysprep has been executed from starting up after taking the backup, select the **Turn Off Power After Scenario Execution** check box under **Scenario Execution Option Setting** on the **Option** tab of the backup scenario.

7. Backing up the master machine

Back up the master machine after deleting the specific information, and save the image for duplication.

8. Restoring the master machine

In order to restore the master machine to its condition before running Sysprep, restore the backup image saved in the procedure 4.

9. Creating a restore scenario

Create a scenario for restoring the image saved in the procedure 7.

See Subsection 3.11.5, "Creating a Restore Scenario File."

For the following operations: Allocate Machine, Scale Out, Replace Machine, and Change Machine Usage, or creating HW Profile Clone, register this restore scenario as distribution software of SystemProvisioning.

3.11.3. Preparing for Backing up the Master Machine

This subsection explains the method to delete the specific information on the master machine using Sysprep on the Windows machine. For the method on the Linux machine, see Subsection 3.4.1.3, "Deleting the Specific Information" in *DeploymentManager Operation Guide.*

Reference: For the description in DPM manuals corresponding to this procedure, see Subsection 3.3.1.3, "Preparing Sysprep" and 3.3.1.4, "Executing Sysprep.bat" in *DeploymentManager Operation Guide.*

1. Log on to the OS by the Administrator account

Perform the following procedure according to the OS of the master machine:

- For Windows 2000, Windows server 2003 and Windows XP

  Do not configure the password for the Administrator account.
- For Windows Server 2008, Windows Vista and Windows 7

  Enable the Administrator account. After OS installation by disk duplication, the logon screen of the Administrator account will appear.

2. Join the work group.

3. Create a Sysprep folder:

1. Run the following file located in the *SigmaSystemCenter DVD-R* by using Explorer.

- For the Windows parameter file(Express)

  SigmaSystemCenter DVD-R:\DPM\TOOLS\ExpressSysprep\Windows\Copy-ExpressSysprep.vbs

- For a disk duplication data file other than the Windows parameter file(Express)

  SigmaSystemCenter DVD-R:\DPM\TOOLS\SYSPREP\Windows\COPYSYSPREP.VBS

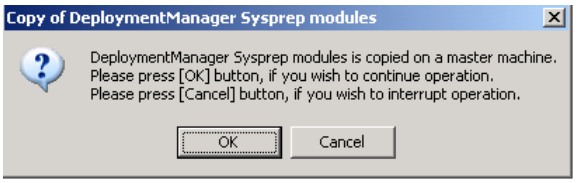
Note:

- If an **OS boot drive:\Sysprep** folder exists, it is overwritten.
- During OS installation by disk duplication, the following folder will be created:

<*OS installed Drive*>:\DPM_DiskCloningTmp

If the same name folder exists, the OS installation by disk duplication may not work properly.

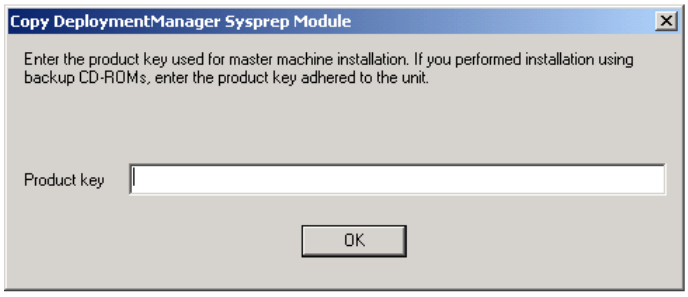
2. The **Copy of DeploymentManager Sysprep modules** dialog box appears. Click **OK**.


Copy of DeploymentManager Sysprep modules
DeploymentManager Sysprep modules is copied on a master machine.
Please press [OK] button, if you wish to continue operation.
Please press [Cancel] button, if you wish to interrupt operation.
OK
Cancel

3. The folder: *Sysprep* is created on the drive where the master machine's OS is running.

4. For Windows Server 2008, Windows Vista, and Windows 7, the following screen does not appear, so go to the next procedure.

   For OS other than the above, the following screen appears. Enter the product key into the **Product key** box, and click **OK**.


Copy DeploymentManager Sysprep Module
Enter the product key used for master machine installation. If you performed installation using backup CD-ROMs, enter the product key adhered to the unit.
Product key
OK

5. DPM will start copying the necessary file for disk duplication from the *SigmaSystemCenter DVD-R*. After copying is complete, a dialog box will appear. Click **OK**.

Copy of DeploymentManager Sysprep modules
Copy of DeploymentManager Sysprep modules was finished.
Please pursue DeploymentManager Sysprep process following the procedure.
OK

4. Copy Microsoft Sysprep

   For Windows Server 2008, Windows Vista and Windows 7, this procedure and the procedure 5 are unnecessary, so skip to the procedure 6.

   For OS other than the above, perform the following procedure:

   Find the **sysprep.exe** and **setupcl.exe** in the following folder:

   CD-R/DVD-R of the master machine's OS:
   \SUPPORT\TOOLS\DEPLOY.CAB.

   Then, copy both of the files to the Sysprep folder created in the procedure 3.

5. Copy the Microsoft network setup

   Find the **netdom.exe** in the following folder:

   CD-R/DVD-R of the master machine's OS:
   \SUPPORT\TOOLS\SUPPORT.CAB.

   Then, copy the file to the following folder: \Sysprep\i386\$OEM$\$$\SYSTEM32, created in the procedure 3.

6. Edit the information of DPM Server to be connected.

Edit the file created in the procedure 3.

Change the following underlined IP address to the IP address and port of the management server where DPM Server is installed. Be sure not to change information in the file other than the underlined IP address.

- For Windows parameter file(Express)

  OS Running Drive:\Sysprep\Express-Server.ini

- For a disk duplication data file other than the Windows parameter file(Express)

  OS Running Drive:\Sysprep\server.ini

  E.g.)

  ServerIP=192.168.0.1

  FTUnicastPort=26508

Note:

・During OS installation by disk duplication, the managed machine connects to the IP address specified as ServerIP and to the port specified as FTUnicastPort in the setting file to communicate with DPM Server. If the managed machine cannot connect to DPM Server using specified ServerIP and FTUnicastPort with the master image created on DPM6.1 or later, the managed machine searches DPM Server within the network. So the master image does not need to be created again in case of setting failure of ServerIP and FTUnicastPort or when the IP address and port of DPM Server have been changed after creating of the master image. Because it takes a while of the machine to search DPM Server, OS installation by disk duplication might take longer to be processed.

・The port specified as FTUnicastPort is the port number which is set to DPM Server. You can check the port number set to the management server with the following files:

DPM Server installation folder\PXE\Images\Port.ini

Key name: FTUnicast

Default value:

New installation of DPM Server 26508

In-place upgrade of DPM Server 56023

・After OS starts up and the IP address is assigned with DHCP, OS installation by disk duplication reflects the machine-specific information by obtaining the disk duplication data file from DPM Server. In an environment where network connection or IP address assigning of DHCP takes time, obtaining the disk duplication data file may fail and the processing may not continue. To avoid this, change the setting of retry count or retry interval of the disk duplication data file when creating the master machine.

OS Running Drive:\Sysprep\deplan.ini

RetryTimes=20 (retry count)

IntervalSec=5 (retry interval)

The default values are as above.

One connection attempt takes about 26 seconds.

If 5 seconds is set for IntervalSec and 20 times is set for RetryTimes, the total time for retry is calculated with the following expression: (26 seconds + 5 seconds) * 20 times = 620 seconds.

7. Run **Sysprep.bat**.

   1. Run the **Sysprep.bat** under the Sysprep folder created in the procedure 3. After running the command, follow the instructions displayed on the Command Prompt.

      Note:

      ・ For Windows 2000, Windows Server 2003 or Windows XP, do not run **Sysprep.exe** located in the same folder.

      ・ End all the started applications and explorers.

   2. The machine is automatically powered off after running Sysprep.

      If the machine restarts, and the POST screen appears, press the POWER switch to turn the power OFF before obtaining the IP address assigned by DHCP.

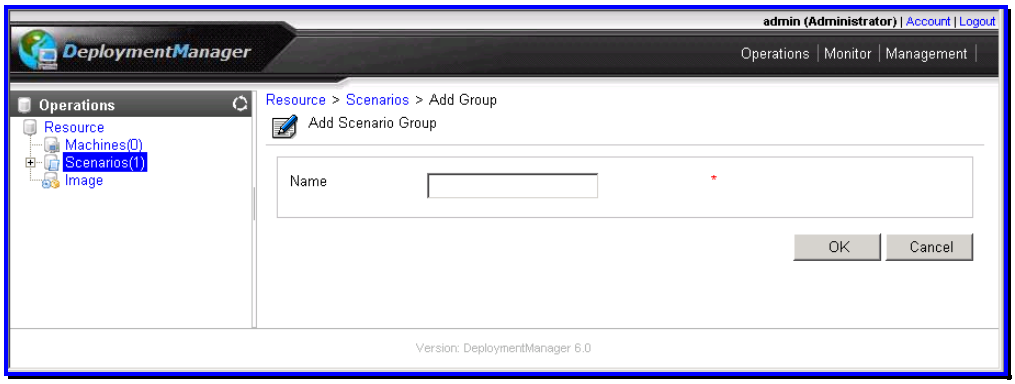
3.11.4. Creating a Backup Scenario File

To create a backup scenario file, perform the following procedure:

Note: Before executing DPM's Backup / Restore function, be sure to check the disk number by using the Disk Viewer. For details of the Disk Viewer, see Section 7.2, "Disk Configuration Check Tool" in *DeploymentManager Reference Guide*.

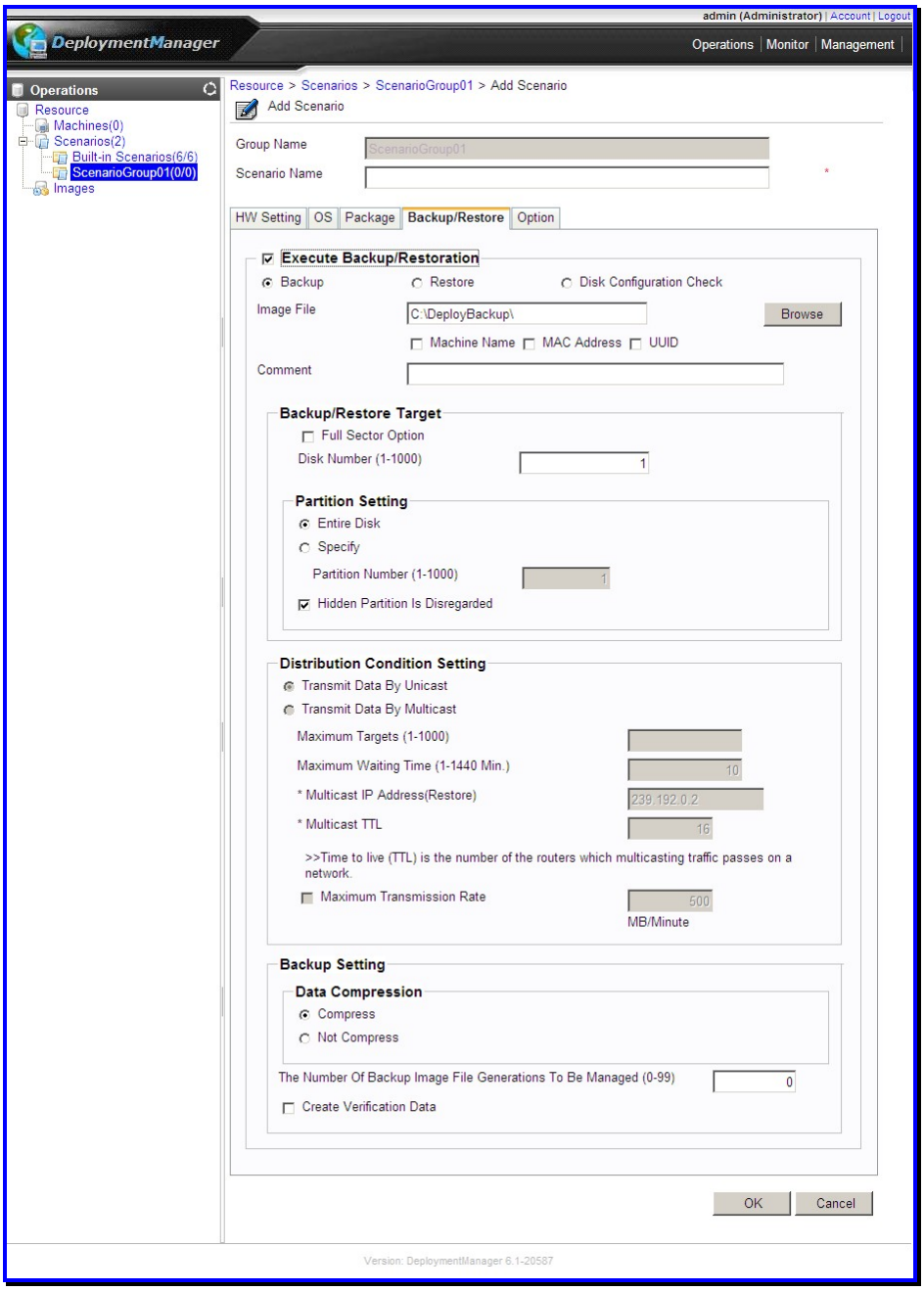
1. Start the DPM Web Console.
2. Click the **Operations** on the Title bar to switch to the **Operations** view.
3. Create a scenario group. If the scenario group planned to be created already exists, skip to the procedure 10.
4. Click the **Scenarios** from the **Resource** tree.
5. **Group List** appears on the Main Window.
6. Click the **Add Group** on the **Configuration** menu.

7. **Add Scenario Group** appears on the Main Window.



8. Enter the group name into the **Name** box. (Required)
9. Click **OK**.
10. Add the scenario. Click the scenario group to which the scenario is to be added in the **Resource** tree.
11. Details of the group appear on the Main Window.
12. Click the **Add Scenario** on the **Configuration** menu.
13. **Add Scenario** appears on the Main Window.

14. Select the **Backup / Restore** tab.



15. Enter an arbitrary name in the **Scenario Name** box. (Required)

16. Select the **Execute Backup / Restoration** check box, and select the **Backup**.

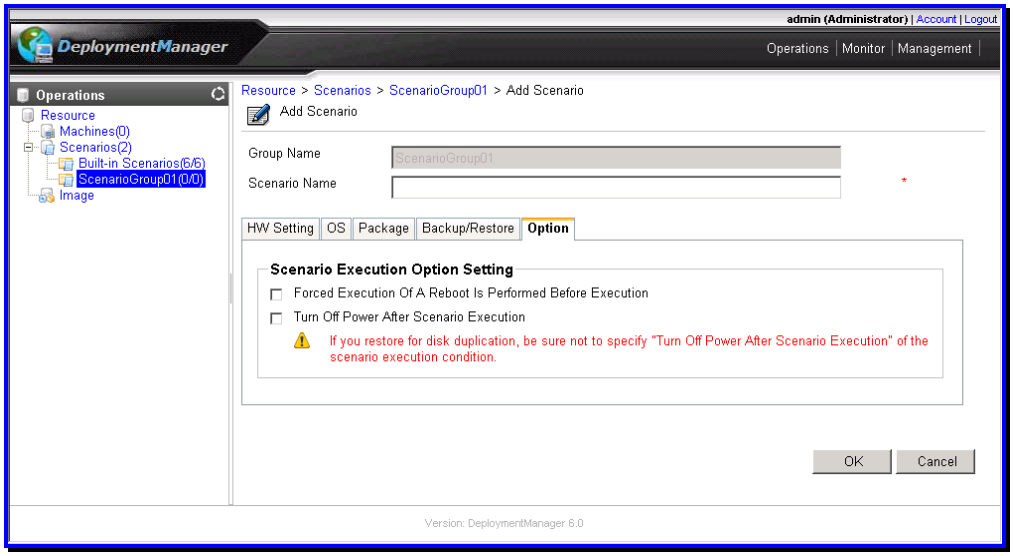
17. Enter an arbitrary backup image file into the **Image File** box.(Required)

Note:

・If the managed machine to be backed up and the managed machine to be restored are different, do not select any of the following check boxes: **Machine Name**, **MAC Address** or **UUID**. (Clear these check boxes.)

・If multiple machines with the same computer name or host name concurrently exist in the managed machine, the image file of the different machine might be used to restore with only the Machine check box enabled. In this case, you are recommended to use with the MAC address or UUID check box.

18. Enter the disk number and the partition number that were obtained from Disk Viewer into the **Disk Number** box and the **Partition Number** box respectively under **Backup / Restore Target**.
19. Click the **Option** tab.



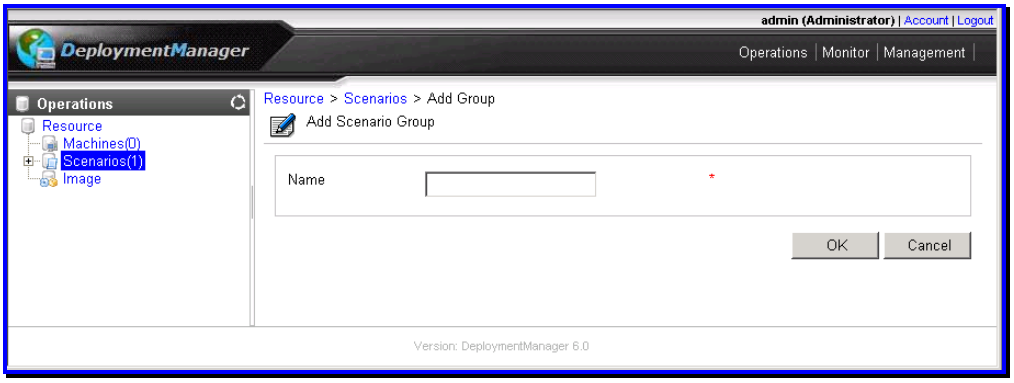
20. Select the **Forced Execution Of A Reboot is Performed Before Execution** check box under **Scenario Execution Option Setting.**
21. **Click OK.**
22. The created scenario appears under **Scenario List**.

3.11.5. Creating a Restore Scenario File

To create a restore scenario file, perform the following procedure.

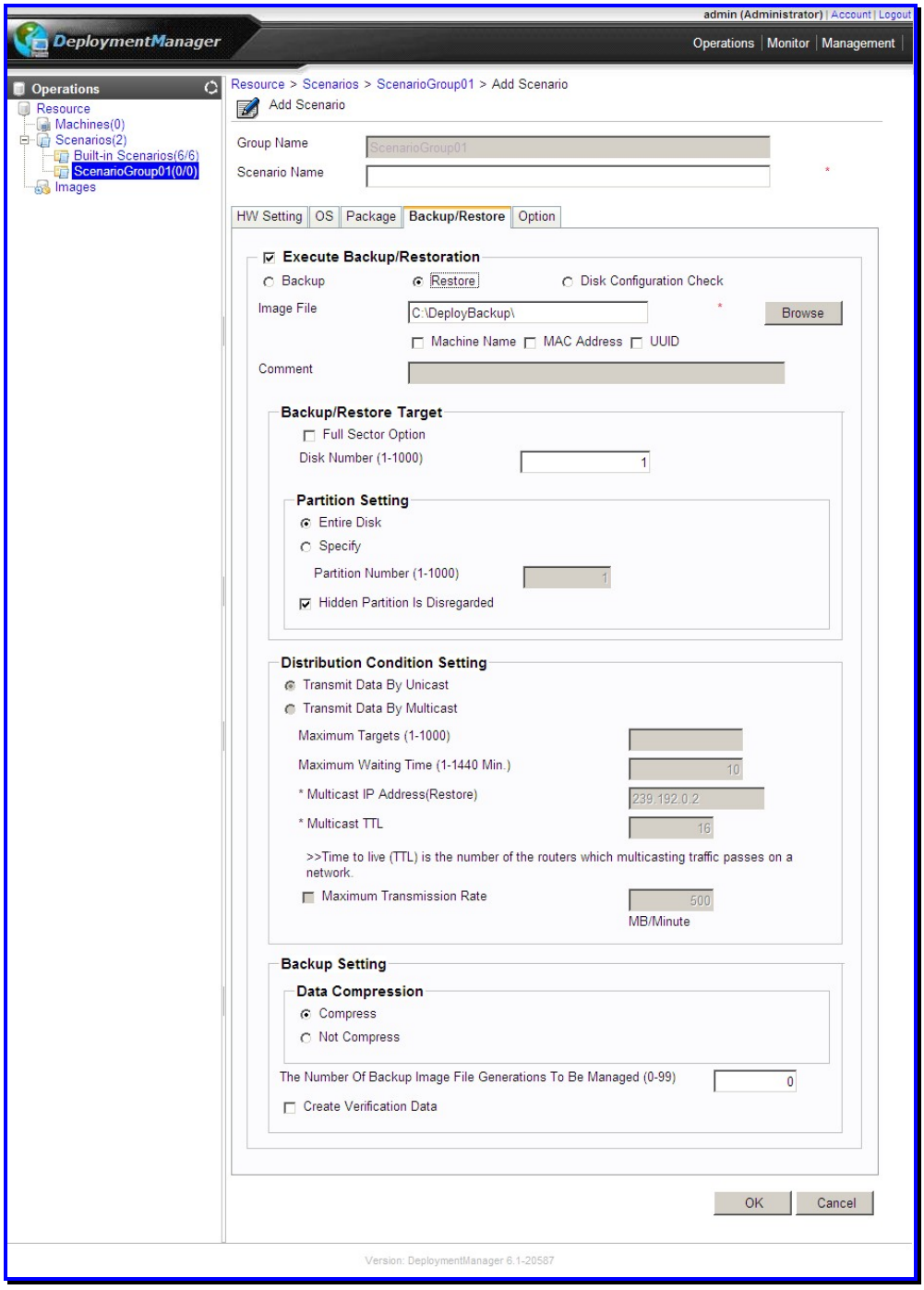
Note: Before executing DPM's Backup / Restore function, be sure to check the Disk number by using the Disk Viewer. For details of the Disk Viewer, see Section 7.2, "Disk Configuration Check Tool" in *DeploymentManager Reference Guide*.

1. Start the DPM Web Console.
2. Click the **Operations** on the Title bar to switch to the **Operations** view.
3. Create a scenario group. If the scenario group planned to be created already exists, skip to the procedure 10.
4. Click the **Scenarios** from the **Resource** tree.
5. **Group List** appears on the Main Window.
6. Click the **Add Group** on the **Configuration** menu.
7. **Add Scenario Group** appears on the Main Window.



8. Enter the group name into the **Name** box. (Required)
9. Click **OK**.
10. Add the scenario. Click the scenario group to which the scenario is to be added in the **Resource** tree.
11. Details of the group appear on the Main Window.
12. Click the **Add Scenario** on the **Configuration** menu.

13. **Add Scenario** appears on the Main Window.



14. Enter an arbitrary name in the **Scenario Name** box. (Required)
15. Select the **Execute Backup / Restoration** check box, and select the **Restore**.

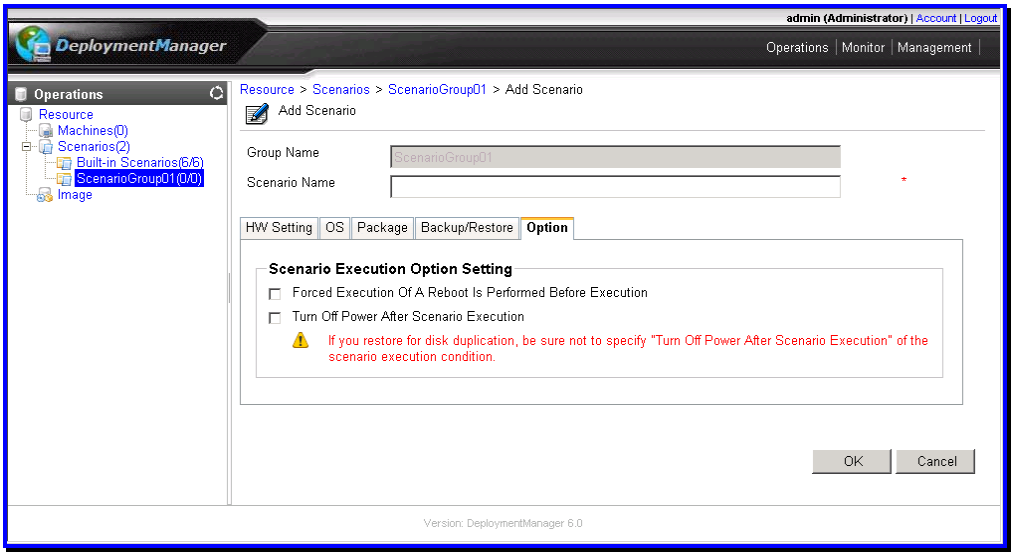
16. Enter the image file specified in the backup scenario into the **Image File** box. (Required)

Note:

・If the managed machine to be backed up and the managed machine to be restored are different, or an image saved after deleting the specific information of the master machine is to be configured on the managed machine, do not select any of the following check boxes: **Machine Name**, **MAC Address** or **UUID**. (Clear these check boxes.)

・If multiple machines with the same computer name or host name concurrently exist in the managed machine, the image file of the different machine might be used to restore with only the Machine check box enabled. In this case, you are recommended to use with the MAC address or UUID check box.

17. Enter the disk number and the partition number that were obtained from the Disk Viewer into the **Disk Number** box and the **Partition Number** box respectively under **Backup / Restore Target**.
18. Select the **Transmit Data By Unicast** under **Distribution Condition Setting**.
19. Click the **Option** tab.



20. Select the **Forced Execution Of A Reboot is Performed Before Execution** check box under **Scenario Execution Option Setting**.
21. Click **OK**.
22. The created scenario appears under **Scenario List**.

3.12. Creating a Master VM in a Virtual Environment

Create a master machine to be the source of virtual machines managed in SystemProvisioning.

3.12.1. Creating a Master VM in vCenter Server

To create a master VM to be the source of virtual machines managed in SystemProvisioning on the management screen of vSphere Client, perform the following procedure:

Reference: For how to create a virtual machine in vCenter Server by using vSphere Client, see product manuals of VMware, Inc.

1. Start and log into vSphere Client.
2. Create a virtual machine, specifying the number of CPUs, memory capacity, disk capacity, the number of disks, and the number of NICs corresponding to the virtual machine to create.

   Note:

   ▪ When creating a Differential Clone template, do not select the Independent mode for the master VM's virtual disk mode.

   ▪ Do not select Independent Nonpersistent mode for the master VM's virtual disk mode.

   ▪ When creating a virtual disk to install OS, use either of "IDE0:0" or "SCSI0:0".

   ▪ When creating a HW Profile Clone or when executing the distribution to virtual machines by using DPM, do not change the default setting of the virtual NIC and the SCSI controller.

   ▪ Disable the sleep mode setting of OS.

3. Install OS that is supported by the virtual machine to create.
4. Only when Windows Server 2003 or earlier is used on the master VM, clear the Administrator password configured to the OS.

   Note: If the Administrator password is not cleared here, the same password as the master VM's will be set for the virtual machine to create.

5. Install VMwareTools on the master VM.

6. To create a HW Profile Clone template from the master VM for Create and Assign Machine, perform the following procedures:
   1. Install DPM Client. For the procedure, see Section from 2.7, "Installing to a Managed Machine Running Windows (x86 / x64) From the Installation Wizard" to 2.10, "Installing to a Managed Machine Running Linux" according to your environment in *SigmaSystemCenter Installation Guide*.
   2. If a firewall is installed, verify that the ports that DPM Client uses are open.
   3. Start the master VM, and display the BIOS screen. Change the boot order of NIC of the master VM to the first.

   Note: For the virtual NIC of the virtual machine, use NIC supported by DPM. In the case of virtual machines created in vCenter Server, not supported NICs may be used as the default configuration.

7. Install applications that are supported by the virtual machine to use.
8. In SystemProvisioning, virtual machines are created from a template that is based on a master VM. Therefore, create necessary kinds of master VMs according to the virtual machines to use.

3.12.2. Creating a Master VM in XenCenter

To create a master VM to be the source of virtual machines managed in SystemProvisioning on the management screen of XenCenter, perform the following procedure:

Reference: For how to create a virtual machine in XenCenter, see product manuals of Citrix Systems, Inc.

1. Start and log into XenCenter.
2. Create a virtual machine, specifying the number of CPUs, memory capacity, disk capacity, the number of disks, and the number of NICs corresponding to the virtual machine to use.

   Note: Set DevicePosition to "0" on a virtual disk where the OS is to be installed.

3. Install OS that is supported by the virtual machine to use.

   To create a Windows VM, install Windows OS for users.
4. Install Xen Server Tools.
5. To create a Differential Clone template and a Disk Clone template for Create and Assign Machine from the master VM, perform the following procedures:
   1. Install DPM Client. For the procedure, see Section from 2.7, "Installing to a Managed Machine Running Windows (x86 / x64) From the Installation

Wizard" to 2.10, "Installing to a Managed Machine Running Linux" according to your environment in *SigmaSystemCenter Installation Guide*.

2. If a firewall is installed, verify that the ports that DPM Client uses are open.
3. Make sure to set the disk in front of the NIC for the boot order of the master VM.

6. Install applications that are supported by the virtual machine to use.
7. In SystemProvisioning, virtual machines are created from a template that is based on a master VM. Therefore, create necessary kinds of master VMs according to the virtual machines to use.

Note: Set *empty* to the DVD Drive to which the created master VM connects, otherwise, creating a virtual machine from a master VM in SystemProvisioning might fail.

3.12.3. Creating a Master VM on ESXi

To create virtual machines on ESXi by using SystemProvisioning, a master VM to be the source of the virtual machines is needed. To create the master VM to be the source of the virtual machines managed in SystemProvisioning on the management screen of vSphere Client, perform the following procedure:

Reference: To create a virtual machine on ESXi by using vSphere Client, see product manuals of VMware, Inc.

1. Start the vSphere Client and log into ESXi.
2. Create a virtual machine, specifying the number of CPUs, memory capacity, disk capacity, the number of disks, and the number of NICs corresponding to the virtual machine to use.

Note:

▪ When creating a Differential Clone template, do not select the Independent mode for the master VM's virtual disk mode.

▪ Do not select Independent Nonpersistent mode for the master VM's virtual disk mode.

▪ When creating a virtual disk to install OS, use either of "IDE0:0" or "SCSI0:0".

▪ When creating a HW Profile Clone or when executing the distribution to virtual machines by using DPM, do not change the default settings of a virtual NIC and a SCSI controller.

▪ Disable the sleep mode setting of OS.

3. Install OS that is supported by the virtual machine to use.
4. Install VMwareTools.

5. If the OS installed on the master VM is Windows Server 2003 or earlier, clear the Administrator password configured to the OS.

Note: If the Administrator password is not cleared here, the same password as the master VM's will be set for the virtual machine to create.

6. To create a template of HW Profile Clone, Differential Clone, or Disk Clone for Create and Assign Machine from the master VM, perform the following procedures:
   1. Install DPM Client. For the procedure, see Section from 2.7, "Installing to a Managed Machine Running Windows (x86 / x64) From the Installation Wizard" to 2.10, "Installing to a Managed Machine Running Linux" according to your environment in *SigmaSystemCenter Installation Guide*.
   2. If a firewall is installed, open the ports that DPM Client uses.
   3. When creating a HW Profile Clone template, start the master VM, and display the BIOS screen. Then, change the boot order of NIC of the master VM to the first.
7. Install applications that are supported by the virtual machine to use.
8. In SystemProvisioning, virtual machines are created from a template that is based on a master VM, such as HW Profile Clone, Differential Clone and Disk Clone. Therefore, create necessary kinds of master VMs according to the virtual machines to use.

3.12.4. Creating a Master VM on Hyper-V

To create virtual machines on Hyper-V by using SystemProvisioning, a master VM to be the source of the virtual machines is needed. To create the master VM to be the source of the virtual machines managed in SystemProvisioning on the management screen of Hyper-V Manager, perform the following procedure:

Reference: To create a virtual machine on Hyper-V by using Hyper-V Manager, see the help in Windows Server 2008 or the product manual.

1. Start the Hyper-V Manager.
2. Create a virtual machine to use as a master VM on the **New Virtual Machine Wizard**. Specify the name, memory capacity, virtual disks, and ISO image of the OS of the master VM.
3. Install the OS from the specified ISO image.
4. If the OS is Windows Server 2003 or earlier, clear the Administrator password configured to the OS.

Note: If the Administrator password is not cleared here, the creation of a virtual machine will be stopped, and the password will have to be inputted manually.

5. Install Integration Services.
6. Install DPM Client. For the procedure, see Section from 2.7, "Installing to a Managed Machine Running Windows (x86 / x64) From the Installation Wizard" to 2.10, "Installing to a Managed Machine Running Linux" according to your environment in *SigmaSystemCenter Installation Guide*.
7. If a firewall is installed, verify that the ports that DPM Client uses are open.
8. Install applications to be included in the master image.
9. Configure the setting for network adapters. When planning to use a HW Profile Clone template, turn off the virtual machine and add *legacy network adapter*. Connect this adapter to the network to communicate with DPM because this adapter is used for DPM distribution.
10. Add or delete other network adopters or configure network setting, according to your operation plan.

Note:

・Hyper-V has two kinds of NIC:

- Network Adapter (High speed / Without PXE booting)
- Legacy Network Adapter (Low speed / With PXE booting)

Because DPM distribution uses the PXE function, set to use the legacy network adapter for HW Profile Clone. After the distribution, however, a higher-speed network adapter is more appropriate for the operational network. Therefore, setting such a higher-speed network adapter to the master VM is strongly recommended.

・Do not duplicate a virtual machine by using the export and import function of Hyper-V Manager. If you do, the UUID to identify a virtual machine is duplicated, and SigmaSystemCenter cannot manage the virtual machine properly.

・When using Hyper-V cluster, do not move the master VM, or assign the fixed MAC address to the network adapter. By using MAC address pool feature, MAC address can be fixed during the VM creation or registration.

3.12.5. Creating a Master VM on KVM

To create virtual machines on KVM by using SystemProvisioning, a master VM to be the source of the virtual machines is needed. To create the master VM to be the source of the virtual machines managed in SystemProvisioning on the management screen of KVM, perform the following procedure:

Reference: For details about how to create a virtual machine on KVM by using virt-manager, refer to the corresponding manuals published by Red Hat, Inc.

1. Start virt-manager.
2. Create a virtual machine to use as a master VM on the **New VM Wizard**. Specify the name, memory capacity, virtual disks, and ISO image of the OS of the master VM.

3. Install the OS from the specified ISO image.

Note: You should install the acpid package.

4. Set up the console. For how to do this, see Subsection 9.4.3, "Connecting to a Console of a Virtual Machine on XenServer, KVM or Hyper-V".
5. Install DPM Client. For the procedure, see "2.10 Installing to a Managed Machine Running Linux" in *SigmaSystemCenter Installation Guide*.
6. If a firewall is installed, verify that the ports that DPM Client uses are open.
7. Install applications to be included in the master image.
8. Add or delete other network adapters or configure network setting, according to your operation plan.

Part II Start Operation in SigmaSystemCenter

This section explains the operations to register related products to SigmaSystemCenter and to operate machines in SigmaSystemCenter.

- 4 Registering Resources to SigmaSystemCenter
- 5 Creating an Operation Group
- 6 Settings to Manage and Operate Virtual Environment
- 7 Operations for Managing a Machine in the Operations View
- 8 Operations for Managing a Machine in the Virtual View

4. Registering Resources to SigmaSystemCenter

This chapter explains the procedure to add compatible products to SystemProvisioning.

This chapter contains the following sections:

- 4.1 Registering Resources to SigmaSystemCenter 126
- 4.2 Adding a Subsystem 132
- 4.3 Managing ESXi, Hyper-V and KVM 140
- 4.4 Registering a Switch 143
- 4.5 Registering a Load Balancer 153
- 4.6 Registering Storage 158
- 4.7 Registering a Machine 164
- 4.8 Preparing Distribution Software 166
- 4.9 Configuring Machine Property Setting 169
- 4.10 Creating a Policy 178
- 4.11 Creating a Profile 190

4.1. Registering Resources to SigmaSystemCenter and Starting Operation

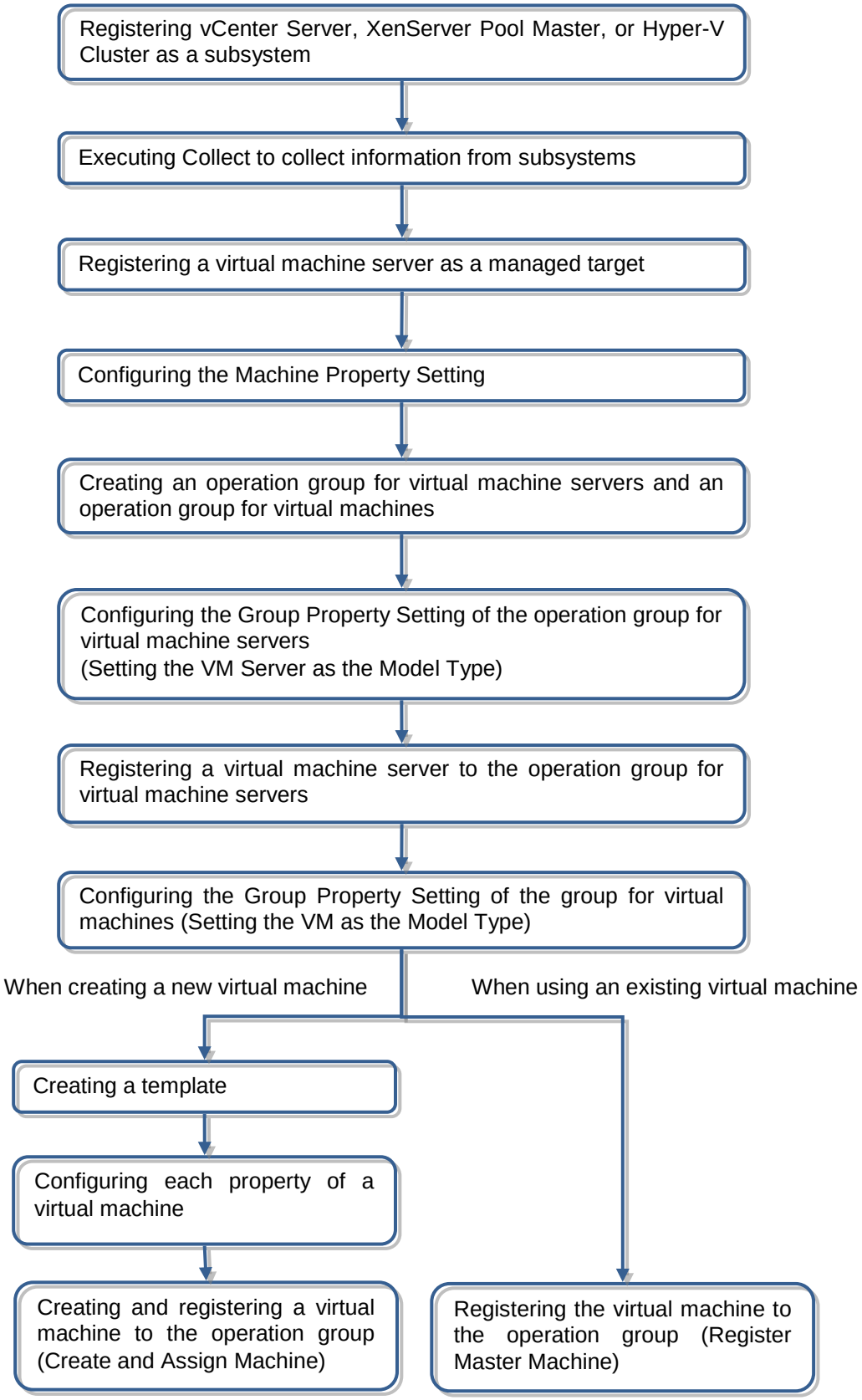
To start operation with SigmaSystemCenter, you need to register resources you want to use to SystemProvisioning.

In order to register the resources to SystemProvisioning, you need to add a virtual compatible product and a related product, such as DPM, MasterScope Network Manager and storage, as a subsystem, and then the resources, such as a machine, switch or storage managed by the subsystem, to SystemProvisioning as a managed target.

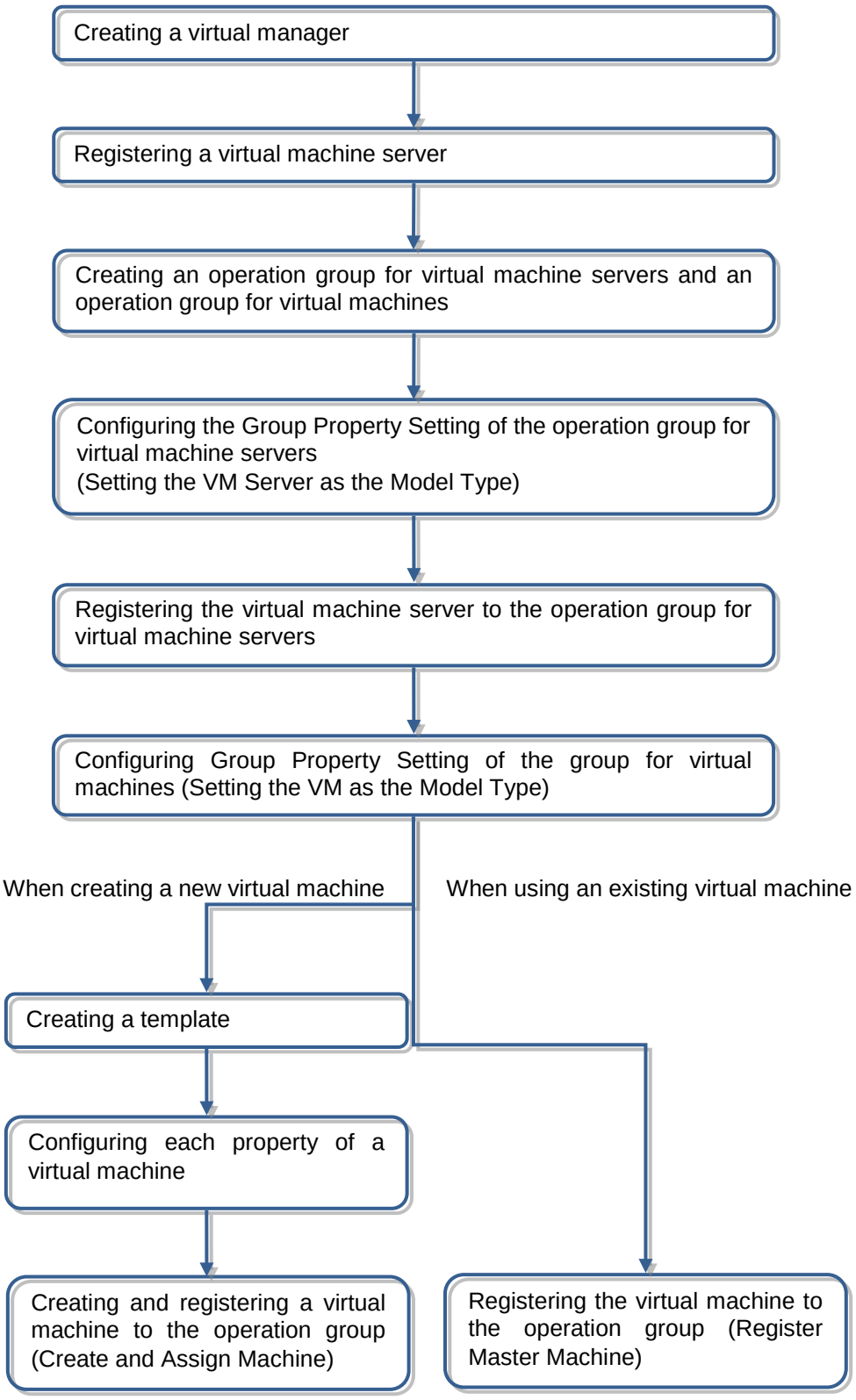
Next, in order to start operation with SigmaSystemCenter, create an operation group, configure each property setting, and register a machine.

The flow from registering resources to SigmaSystemCenter to starting operation is as follows:

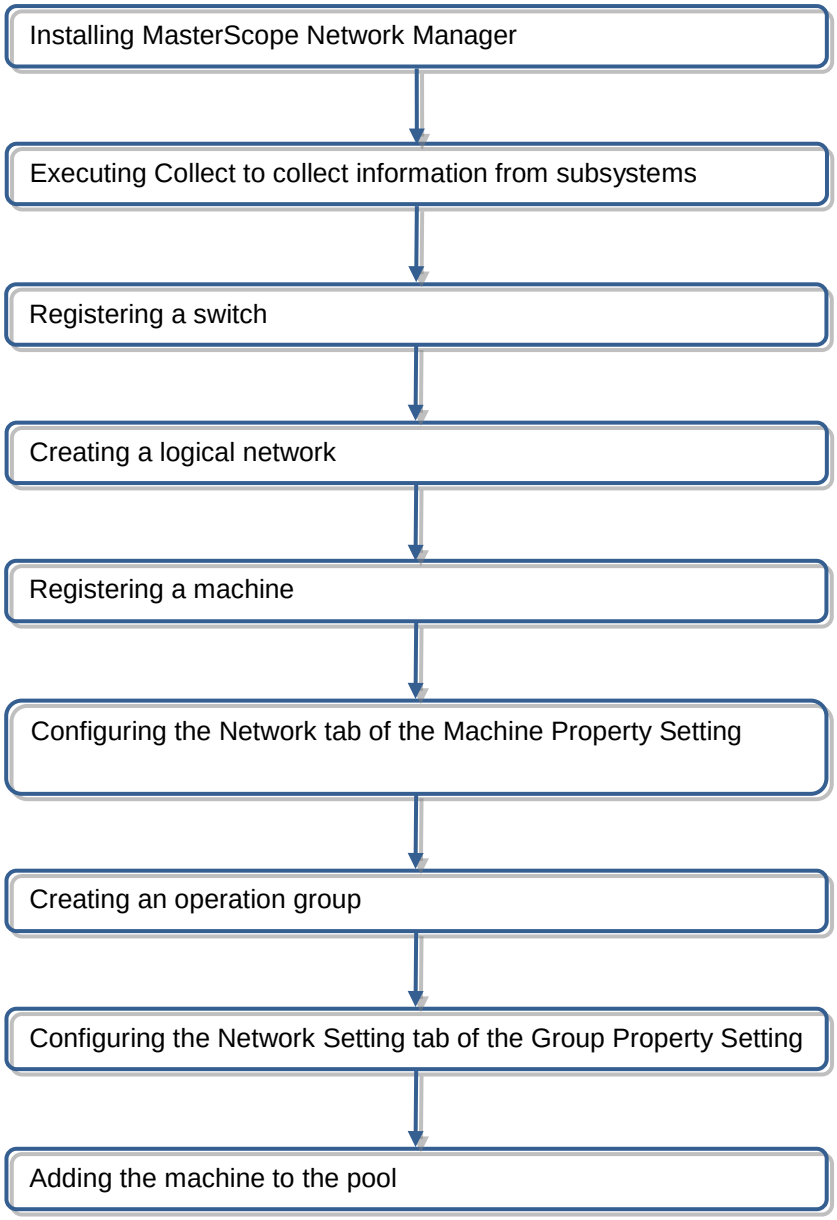
◆ VMware ESX (vCenter Server), XenServer, and Hyper-V Cluster


Registering vCenter Server, XenServer Pool Master, or Hyper-V Cluster as a subsystem
Executing Collect to collect information from subsystems
Registering a virtual machine server as a managed target
Configuring the Machine Property Setting
Creating an operation group for virtual machine servers and an operation group for virtual machines
Configuring the Group Property Setting of the operation group for virtual machine servers
(Setting the VM Server as the Model Type)
Registering a virtual machine server to the operation group for virtual machine servers
Configuring the Group Property Setting of the group for virtual machines (Setting the VM as the Model Type)
When creating a new virtual machine
When using an existing virtual machine
Creating a template
Configuring each property of a virtual machine
Creating and registering a virtual machine to the operation group (Create and Assign Machine)
Registering the virtual machine to the operation group (Register Master Machine)

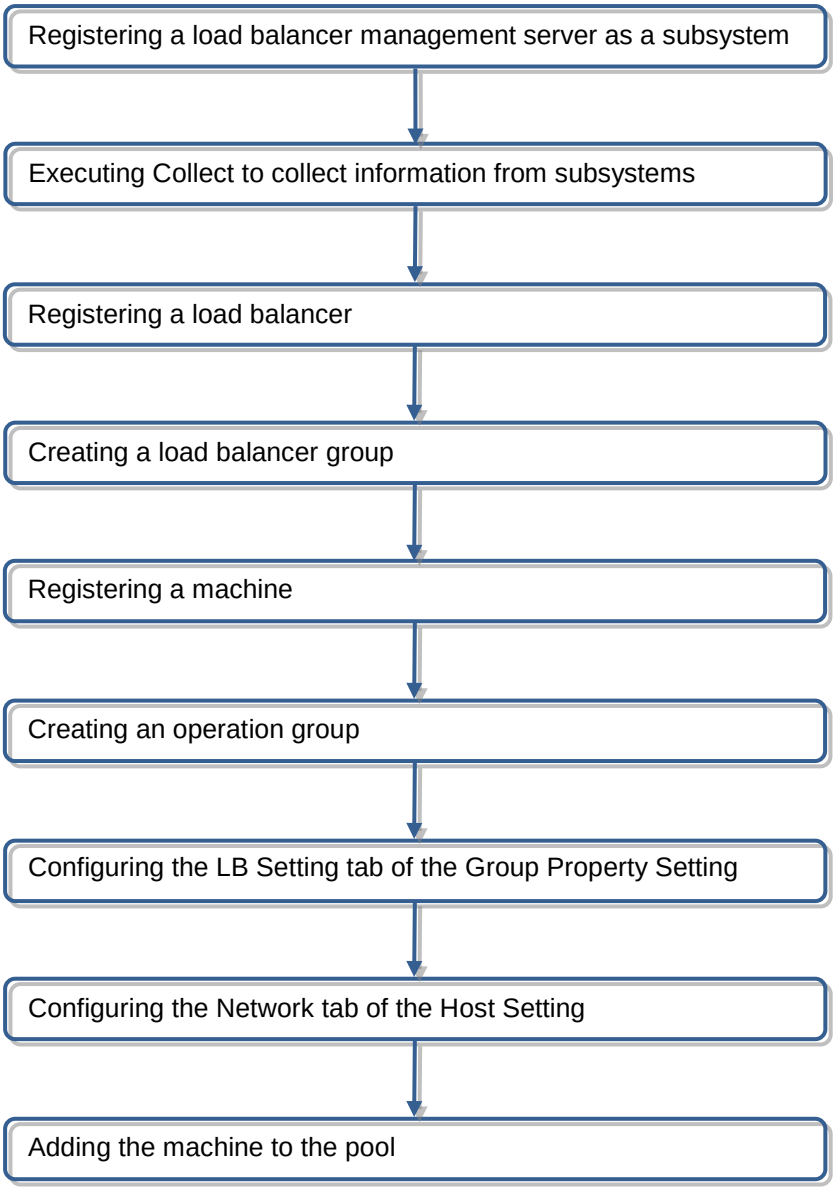
◆ ESXi, Hyper-V single server, and KVM


Creating a virtual manager
Registering a virtual machine server
Creating an operation group for virtual machine servers and an operation group for virtual machines
Configuring the Group Property Setting of the operation group for virtual machine servers
(Setting the VM Server as the Model Type)
Registering the virtual machine server to the operation group for virtual machine servers
Configuring Group Property Setting of the group for virtual machines (Setting the VM as the Model Type)
When creating a new virtual machine
When using an existing virtual machine
Creating a template
Configuring each property of a virtual machine
Creating and registering a virtual machine to the operation group (Create and Assign Machine)
Registering the virtual machine to the operation group (Register Master Machine)

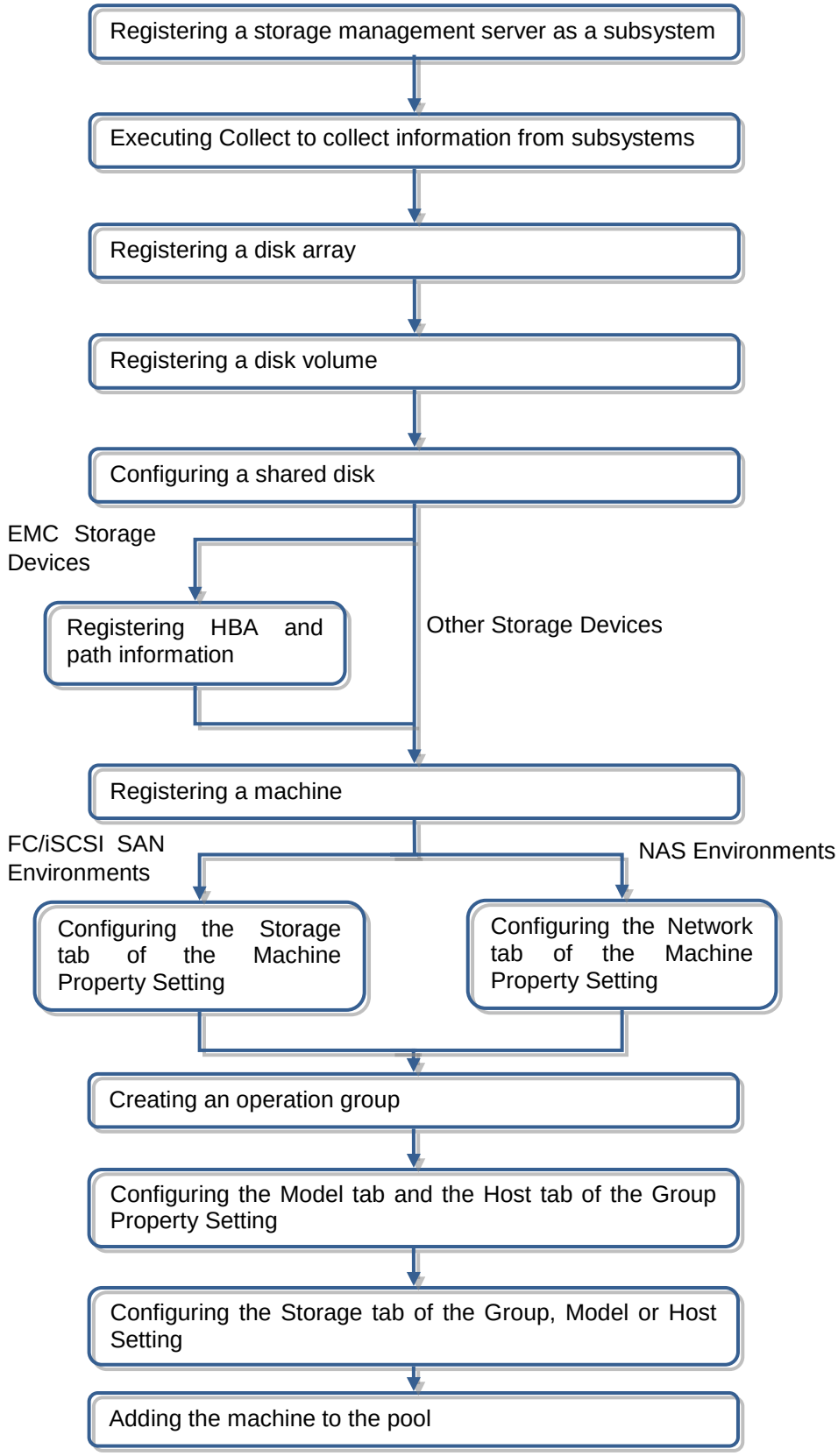
- Network


Installing MasterScope Network Manager
Executing Collect to collect information from subsystems
Registering a switch
Creating a logical network
Registering a machine
Configuring the Network tab of the Machine Property Setting
Creating an operation group
Configuring the Network Setting tab of the Group Property Setting
Adding the machine to the pool

- Load Balancer / Software Load Balancer


Registering a load balancer management server as a subsystem
Executing Collect to collect information from subsystems
Registering a load balancer
Creating a load balancer group
Registering a machine
Creating an operation group
Configuring the LB Setting tab of the Group Property Setting
Configuring the Network tab of the Host Setting
Adding the machine to the pool

◆ Storage


Registering a storage management server as a subsystem
Executing Collect to collect information from subsystems
Registering a disk array
Registering a disk volume
Configuring a shared disk
EMC Storage Devices
Registering HBA and path information
Other Storage Devices
Registering a machine
FC/iSCSI SAN Environments
NAS Environments
Configuring the Storage tab of the Machine Property Setting
Configuring the Network tab of the Machine Property Setting
Creating an operation group
Configuring the Model tab and the Host tab of the Group Property Setting
Configuring the Storage tab of the Group, Model or Host Setting
Adding the machine to the pool

4.2. Adding a Subsystem

This section provides the procedure of adding a subsystem. Add related products you want to use as a subsystem.

SigmaSystemCenter collects and uses the information of managed machines from multiple subsystems: the virtual environment management software, such as vCenter Server, XenServer Pool Master and Hyper-V Cluster, and some subsystems such as DPM. If one machine is managed by multiple subsystems, the information is collected from each subsystem. Therefore, pay attention for one machine not to be registered as two different machines to SystemProvisioning.

- Register subsystems in the order written in this document.
- If you select a subsystem on the Add Subsystem window and click OK, SystemProvisioning collects the information of the added subsystem. To register other subsystem, wait until you confirm that the information has been collected.
- You can check the information of the machine collected from the subsystem in the Resource view.

Note:

・Register the license key of SigmaSystemCenter before adding related products to use as a subsystem. For how to register a license, see Section 2.2, "Registering License Keys."

・Do not add an already added subsystem doubly with another host name, IP address, or URL.

Add a related product as a subsystem:

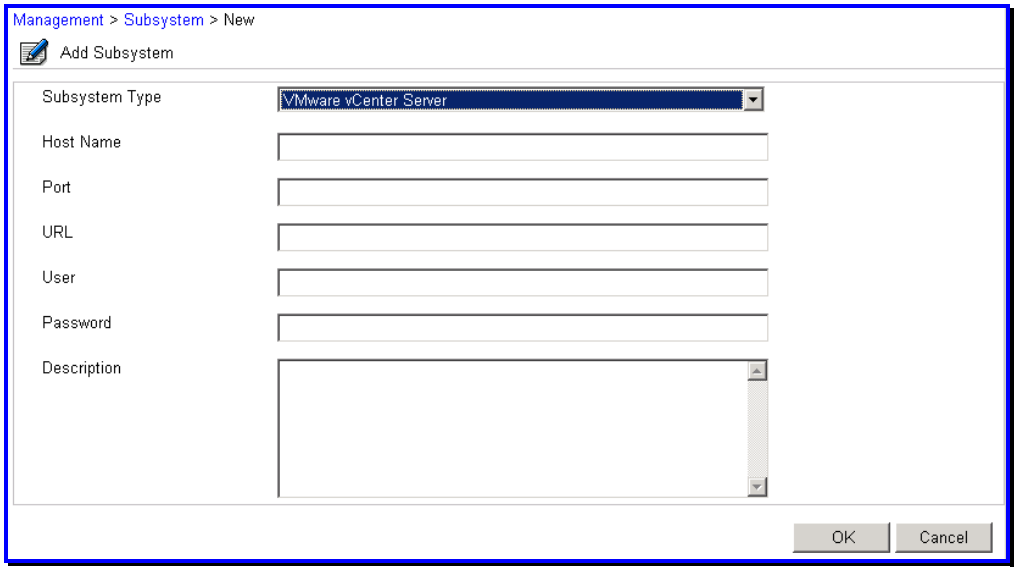
1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **Subsystem** in the **Management** tree.
3. Click **Add Subsystem** on the Configuration menu. **Add Subsystem** appears on the Main Window.

Configure settings on each item with the procedure in the following subsections.

4.2.1. Adding VMware vCenter Server as a Subsystem

To add VMware vCenter Server as a subsystem, perform the following procedure. If you add VMware vCenter Server as a subsystem, ESXs that are registered to VMware vCenter Server are added as subsystems automatically.

1. Display **Add Subsystem** window.



2. Select **VMware vCenter Server** in the **Subsystem Type** list.
3. In the **Host Name** box, enter a host name or IP address of the server on which VMware vCenter Server is installed. Or enter the URL of VMware vCenter Server in the **URL** box.

Note: Ensure that either of the **Host Name** box or the **URL** box is entered. If you enter either of them, you can omit entering the other item because the other item is generated automatically.

4. In the **Port** box, enter the port number with which SystemProvisioning accesses to VMware vCenter Server. If you omit entering the port number, the default port number is registered.

Note: The default port number is "443".

5. In the **User** box, enter the user name of VMware vCenter Server.
6. In th**e Password** box, enter the password for VMware vCenter Server.

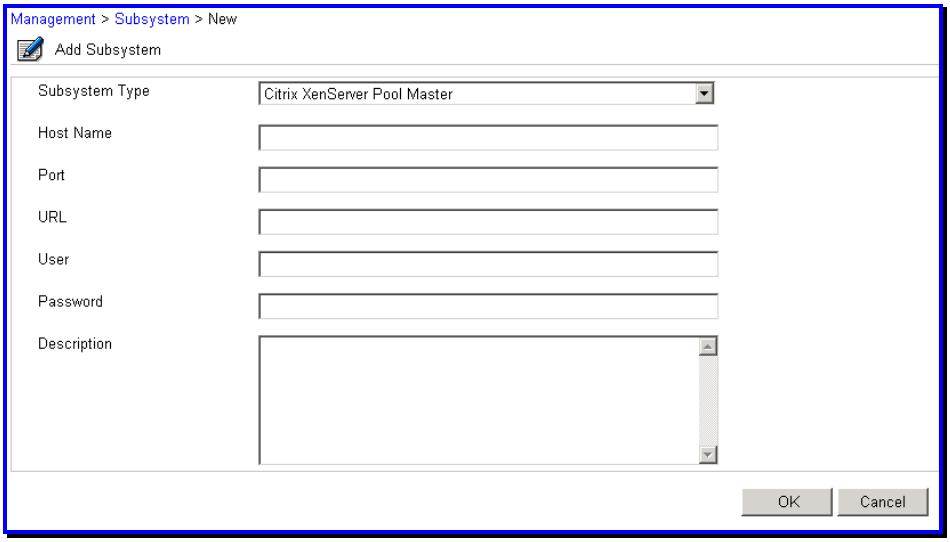
Note: In the environment where the same name user exists both in a domain and a local account, if a domain password is entered in the **Password** box, the domain account is used for connecting to vCenter Server.

7. Click **OK**.
8. The added VMware vCenter Server appears under **Subsystem List**.

4.2.2. Adding XenServer Pool Master as a Subsystem

To add XenServer Pool Master as a subsystem, perform the following procedure. If you add XenServer Pool Master as a subsystem, XenServers that are registered to XenServer Pool Master are added as subsystems automatically.

1. Display **Add Subsystem** window.



2. Select **Citrix XenServer Pool Master** in the **Subsystem Type** list.
3. In the **Host Name** box, enter a host name or IP address of the server which is configured as XenServer Pool Master. Or enter the URL of XenServer Pool Master in the **URL** box.

Note:

- Ensure that either of the **Host Name** box or the **URL** box is entered.
- Do not add a XenServer other than the XenServer Pool Master.

4. In the **Port** box, enter the port number with which SystemProvisioning accesses to XenServer Pool Master. If you omit entering the port number, the default port number is registered.

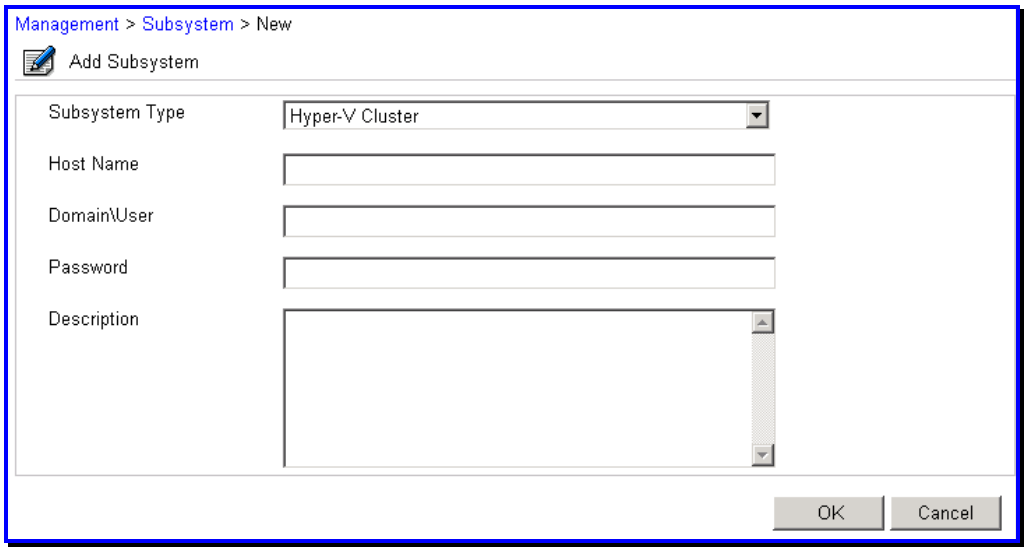
Note: The default port number is "443".

5. In the **User** box, enter the user name of XenServer Pool Master.
6. In the **Password** box, enter the password for XenServer Pool Master.
7. Click **OK**.
8. The added XenServer Pool Master appears under **Subsystem List**.

4.2.3. Adding Hyper-V Cluster as a Subsystem

To add hyper-V Cluster as a subsystem, perform the following procedure. If you add Hyper-V Cluster as a subsystem, all Microsoft Hyper-V nodes registered in Hyper-V Cluster are automatically added as subsystems.

1. Display **Add Subsystem** window.



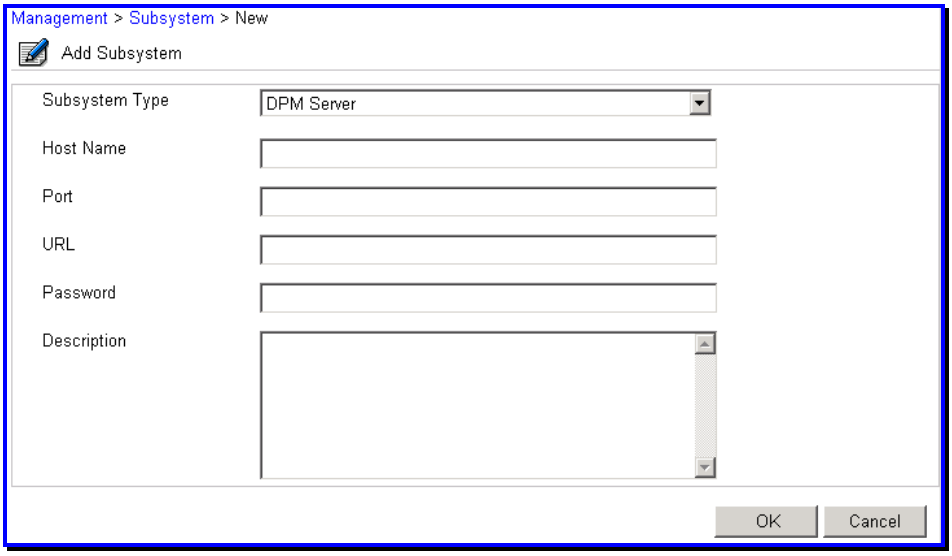
2. Select **Hyper-V Cluster** in the **Subsystem Type** list.
3. In the **Host Name** box, enter a host name or IP address of the server on which Hyper-V Cluster is installed.
4. In the **Domain\User** box, enter a domain name and account name of the account to connect to Hyper-V Cluster, separating each of them with a back slash.
5. In the **Password** box, enter the password of the account entered in the procedure 4.
6. Click **OK.**
7. **The** added Hyper-V cluster appears under **Subsystem List**.

Note: Configure the host name of each node of Hyper-V cluster so that the management server can obtain the IP addresses of them by name resolution.

4.2.4. Adding DPM Server as a Subsystem

To add DPM Server as a subsystem, perform the following procedure:

1. Display **Add Subsystem** window.



2. Select **DPM Server** in the **Subsystem Type** list.
3. In the **Host Name** box, enter a host name or IP address of the server on which DPM Server is installed. To specify a protocol, enter the URL of the DPM Server in the **URL** box.

Note: Ensure that either of the **Host Name** box or the **URL** box is entered.

4. In the **Port** box, enter the port number with which SystemProvisioning accesses to DPM Server. If this text box is not entered, the default protocol number used by DPM Server is registered.

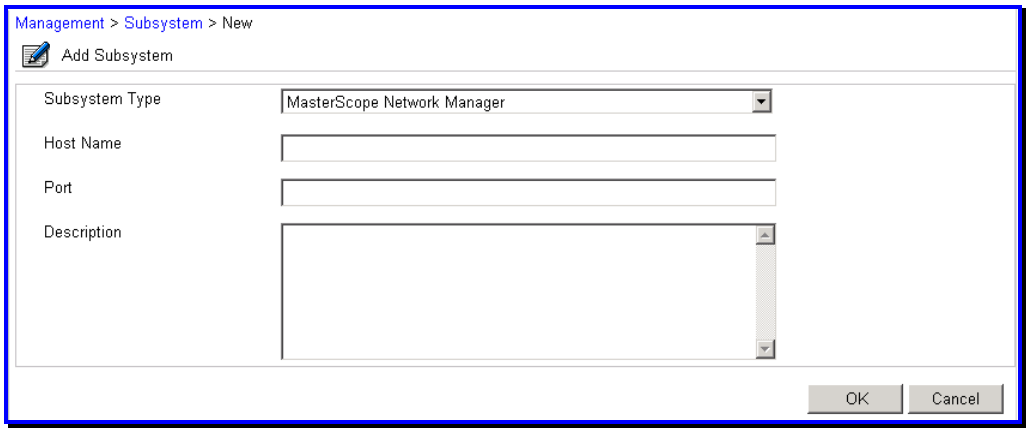
Note: The default value of the protocol is "80" for http, and "443" for https.

5. In the **Password** box, enter the password of *deployment_user* that is registered to DPM Server. The default password is "dpmmgr."
6. Click **OK**.
7. The added DPM Server appears under **Subsystem List**.

4.2.5. Adding MasterScope Network Manager as a Subsystem

To add MasterScope Network Manager as a subsystem, perform the following procedure:

1. Display **Add Subsystem** window.



2. Select **MasterScope Network Manager** in the **Subsystem Type** list.
3. In the **Host Name** box, enter a host name or IP address of the server on which MasterScope Network Manager is installed.
4. In the **Port** box, enter the port number with which SystemProvisioning accesses to MasterScope Network Manager.

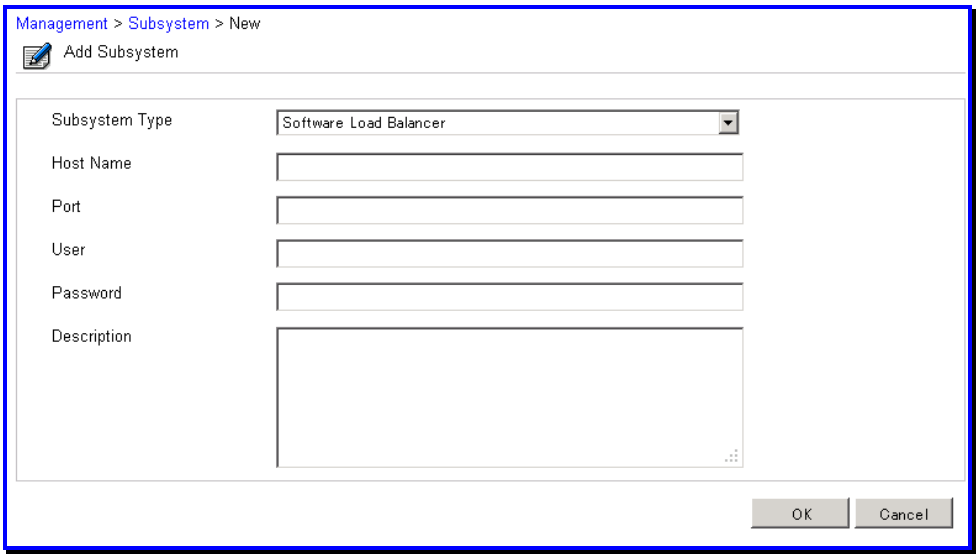
Note: The default port number is "52727".

5. Click **OK**.
6. The added MasterScope Network Manager appears under **Subsystem List**.

4.2.6. Adding Software Load Balancer as a Subsystem

To add a software load balancer as a subsystem, perform the following procedure:

1. Display **Add Subsystem** window.



2. Select **Software Load Balancer** in the **Subsystem Type** list.
3. Enter an IP address of the server on which the software load balancer is configured in the **Host Name** box.
4. Enter a port number for accessing the software load balancer in the **Port** box.

Note: The default value of the port number is "22".

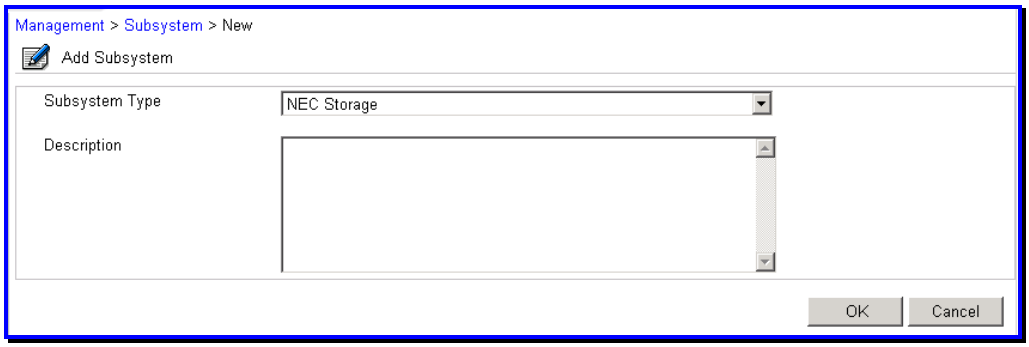
5. Enter an account for accessing the software load balancer in the **Account** box.
6. Enter an account password for accessing the software load balancer in the **Password** box.
7. Click **OK**.
8. The added software load balancer appears under **Subsystem List**.

4.2.7. Adding a Storage Management Server as a Subsystem

To add a storage management server as a subsystem, perform the following procedure:

Note: If you manage NEC Storage E1, the storage management software is controlled in SystemProvisioning by executing a local script; therefore, you do not need to add storage management software as a subsystem.

1. Display **Add Subsystem** window.



2. Select **NEC Storage**, **EMC CLARiiON**, **EMC Symmetrix** or **NetApp Manager** in the **Subsystem Type** list.
3. Click **OK**.
4. The added storage management server appears under **Subsystem List**.

4.3. Managing ESXi, Hyper-V and KVM

This section explains the settings to manage ESXi directly, to manage Hyper-V single server or to manage KVM from SystemProvisioning.

By registering ESXi in the Virtual view, ESXi and virtual machines on ESXi are managed in SystemProvisioning. You can execute the power operations to ESXi, create a virtual machine on ESXi, or execute power operations to a virtual machine on ESXi from SystemProvisioning.

The same things apply to Hyper-V single server and KVM.

4.3.1. Creating Virtual Manager

You can create the virtual manager and datacenters in the Virtual tree. The virtual manager can gather multiple datacenters, and you can create only one virtual manager. Perform the following procedure to create a virtual manager:

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the **Virtual** in the **Virtual** tree.
3. To manage ESXi, click **Set ESXi to Be Managed** on the Configuration menu. To manage Hyper-V single server, click **Set Hyper-V to Be Managed** on the Configuration menu. To manage KVM, click **Set KVM to Be Managed** on the Configuration menu.
4. A confirmation message appears. Click **OK**.
5. A virtual manager of ESXi, Hyper-V or KVM and a datacenter with the name **DefaultDataCenter** are created in the **Virtual** tree.

The added virtual manager is displayed as a subsystem under Subsystem List on the details of a subsystem. The virtual manager names, ESXi, Hyper-V and KVM, are the fixed names. You cannot edit the name.

You can add a datacenter by clicking the icon of the virtual manager, and click Add DataCenter on the Configuration menu.

If you manage the vCenter Server environment or Xen environment, VMware vCenter Server or XenServer Pool Master is the virtual manager. If you register VMware vCenter Server or XenServer Pool Master as a subsystem in the Management view, it is displayed as a virtual manager in the Virtual view.

4.3.2. Adding a Virtual Machine Server

To add a virtual machine server to a datacenter, perform the following procedure:

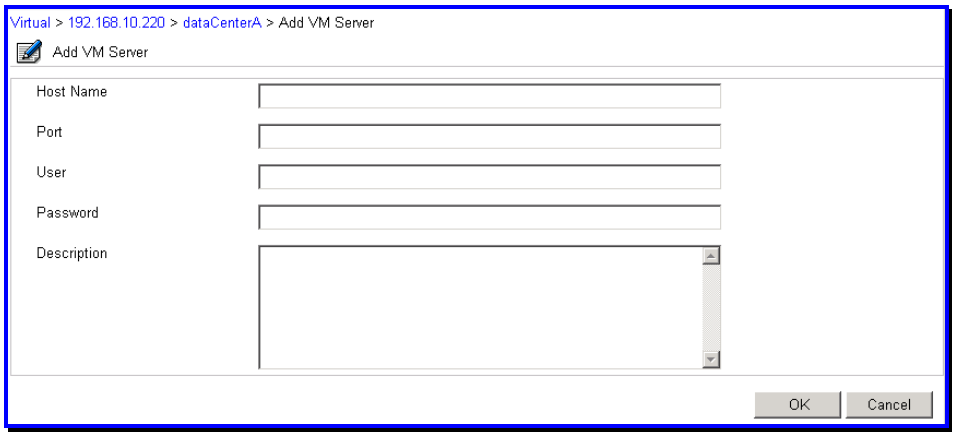
Note:

▪ Do not add one virtual machine server to both vCenter Server and ESXi. Operations for virtual machines or the virtual machine server can fail.

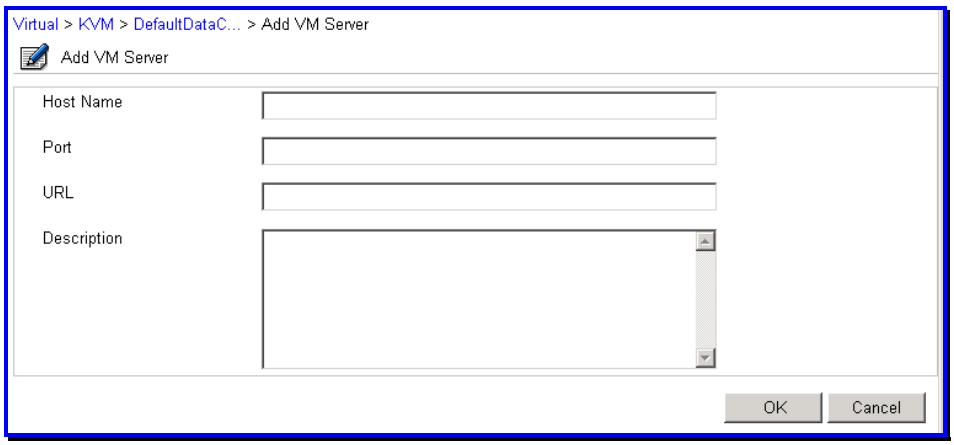
▪ Clustered Hyper-V cannot be registered by following this procedure. Register it from Add Subsystem.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the datacenter to add a virtual machine server in the **Virtual** tree to display the details of the datacenter.
3. Click **Add VM Server** on the Operation menu.
4. **Add VM Server** is displayed on the Main Window.

- For ESXi and Hyper-V



- For KVM



5. Enter a host name or IP address in the **Host Name** box. (Required)

Note:

・ Even if you enter the IP address, the host name is displayed in the **Virtual** view.

・ For KVM, you can skip this procedure if URL is specified in procedure 9. If only the host name is specified, TCP is used for connecting. If you intend to connect by TLS, specify the URL.

6. Enter a port number in the **Port** box. If you omit entering the port number, the default port number is registered.

Note:

・ For ESXi, the default port number is "443."

・ For Hyper-V, the **Port** box is not displayed.

7. Enter a name of an account for management of the virtual machine server in the **User** box. (Required)

Note: For KVM, **User** box does not appear.

8. Enter a password entered in the earlier procedure in the **Password** box. (Required)

Note: For KVM, **Password** box does not appear.

9. For KVM, type URL in the **URL** box.

Note: When a host name is specified, you can skip this procedure. If only the host name is specified, TCP is used for connecting. If you intend to connect by TLS, specify the URL.

[URL format] qemu+transport://hostname[:port]/system

Example:

For TCP qemu+tcp://rhkvm01.example.net/system

For TLS qemu+tls://rhkvm01.example.net/system

10. Click **OK**.
11. Check that adding the virtual machine server is complete on the **Job** window in the **Monitor** view.
12. Switch the window to **Virtual** view.
13. Check that the virtual machine server is registered in the datacenter.

4.4. Registering a Switch

This section explains how to register a switch to be managed by SystemProvisioning and set up the logical network.

SigmaSystemCenter supports the following switches:

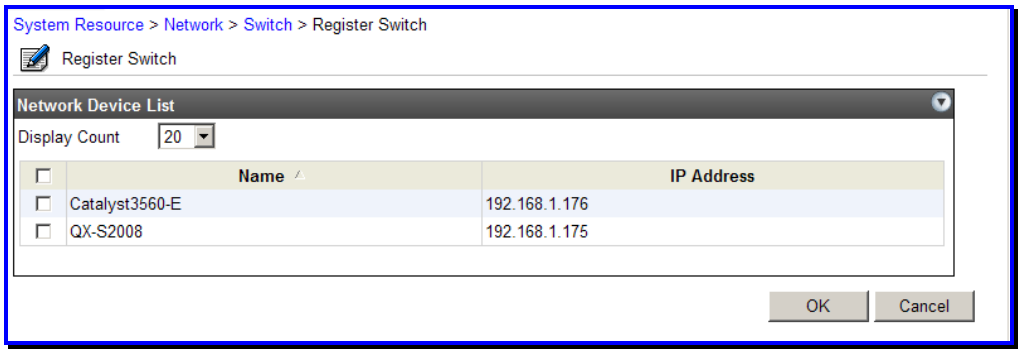
- Physical switch
- Virtual switch
- Distributed switch

4.4.1. Registering a Physical Switch

A physical switch managed in MasterScope Network Manager can be used in SigmaSystemCenter. To register the physical switch as a managed target of SystemProvisioning, perform the following procedure:

Note: If the setting for the switch is changed in MasterScope Network Manager, be sure to run the Collect Switch Information on the Operation menu of SystemProvisioning.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Switch** in the **Resource** tree.
3. Click **Register Switch** on the Configuration menu.
4. **Register Switch** appears on the Main Window.



5. The list of switches managed in MasterScope Network Manager which is registered as a subsystem appears under **Network Device List**. Select the check box of the switch to manage in SystemProvisioning.
6. Click **OK**.
7. The switch specified as a managed target in SystemProvisioning appears under **Switch List**.

4.4.2. Registering a Virtual Switch

A virtual switch can be registered to SystemProvisioning by collecting the information of virtual infrastructure products. To register the virtual switch, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Switch** in the **Resource** tree.
3. Click the **Collect Switch Information** on the Operation menu.
4. Click the **Virtual** on the Title bar to switch to the **Virtual** view.
5. Click the icon of the target virtual machine server in the **Virtual** tree.
6. The virtual switch appears under **Virtual Switch List** on details of the virtual machine server.

4.4.3. Registering a Distributed Switch

Create a distributed switch on VMware vCenter Server in advance. The distributed switch can be registered to SystemProvisioning by collecting the information of VMware vCenter Server. To register the distributed switch, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Switch** in the **Resource** tree.
3. Click the **Collect Switch Information** on the Operation menu.
4. The distributed switch is added under the **Switch** of the **Resource** tree.

4.4.4. Adding a VLAN (Port Group)

To add a VLAN (port group), perform the following procedure:

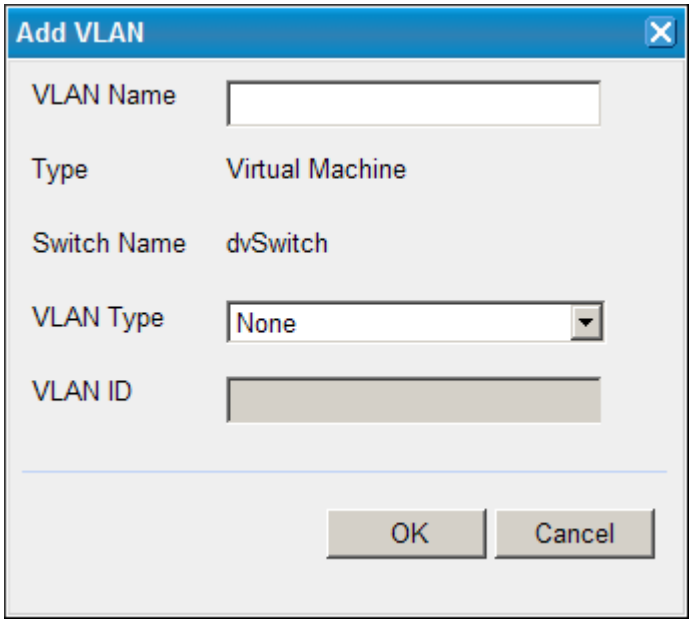
Note:

▪ If the VLAN is set to the VLAN Type, the VLAN ID that is already used in the private VLAN cannot be used.

▪ To configure the private VLAN, the setting for the private VLAN must be added in advance. For the procedure for adding the private VLAN, see Subsection 4.4.5, "Adding a Private VLAN."

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of the distributed switch to add the VLAN (port group) in the **Resource** tree.
3. Details of the distributed switch appear on the Main Window.
4. Click **Add VLAN** on the Configuration menu.

5. **Add VLAN** dialog box appears.



6. Enter the VLAN (port group) name in the **VLAN Name** box. (Required)
7. Select a VLAN type in the **VLAN Type** list.
8. If the **VLAN** is selected in the **VLAN Type** list, enter the VLAN ID in the **VLAN ID** box. If the **private VLAN** is selected in the **VLAN Type** list, select the **private VLAN ID** in the pull down list
9. Click **OK**.

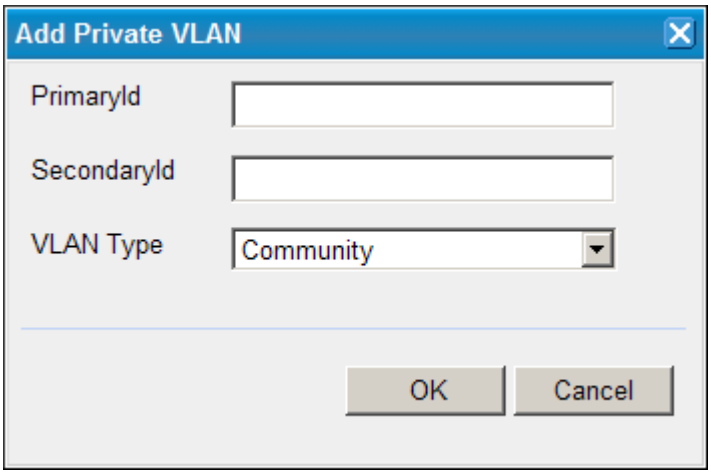
4.4.5. Adding a Private VLAN

To add a private VLAN, perform the following procedure:

Note: VLAN ID that is already used in VLAN cannot be used as Primary ID or Secondary ID.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of the distributed switch to add the private VLAN in the **Resource** tree.
3. Details of the distributed switch appear on the Main Window.
4. Click **Add Private VLAN** on the Configuration menu.

5. The **Add Private VLAN** dialog box appears**.**



6. Enter the primary ID in the **PrimaryId** box.
7. Enter the secondary ID in the **SecondaryId** box.
8. Select a VLAN type in the **VLAN Type** list.
9. Click **OK**.

4.4.6. Adding a Logical Network

If a logical network is registered to an operation group, the following setting can be configured:

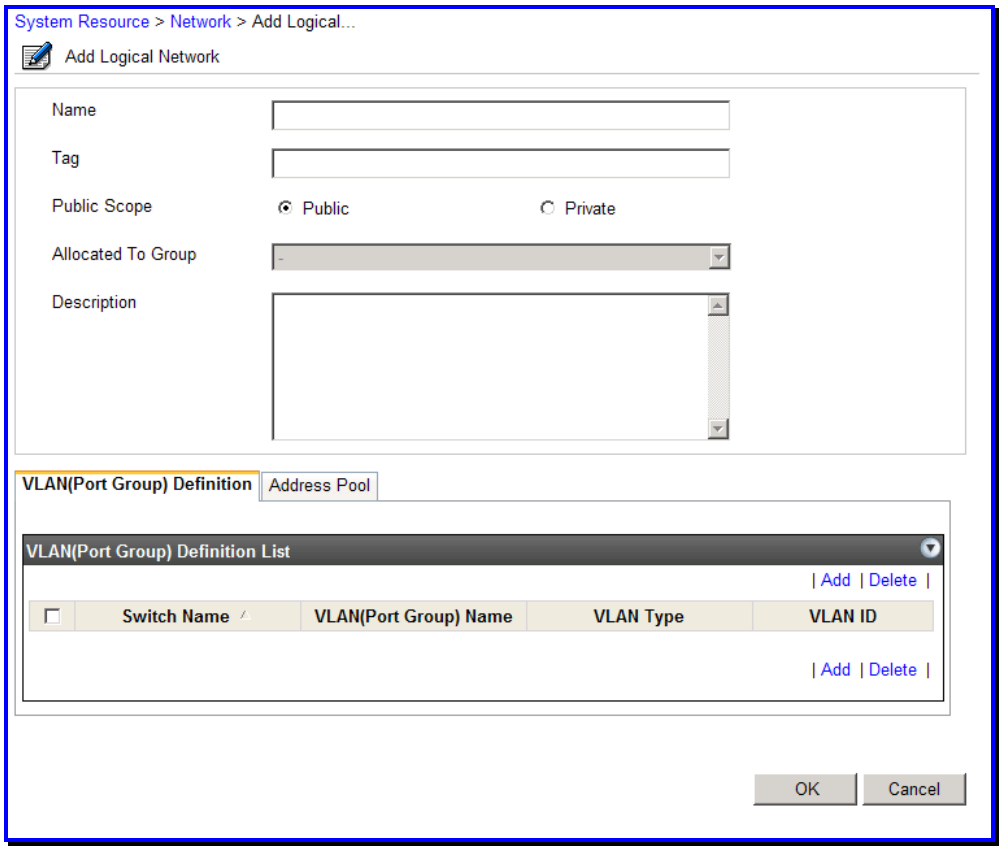
- When the system configuration is changed, the ports can be added to and deleted from VLAN automatically to reflect the changes.
- The information of the virtual switch and port group that are required for creating a virtual machine can be configured.
- The Address Pool to be required for automatic IP addressing can be configured.

It is also possible to set only the address pool to the logical network.

To add a logical network, perform the following procedure:

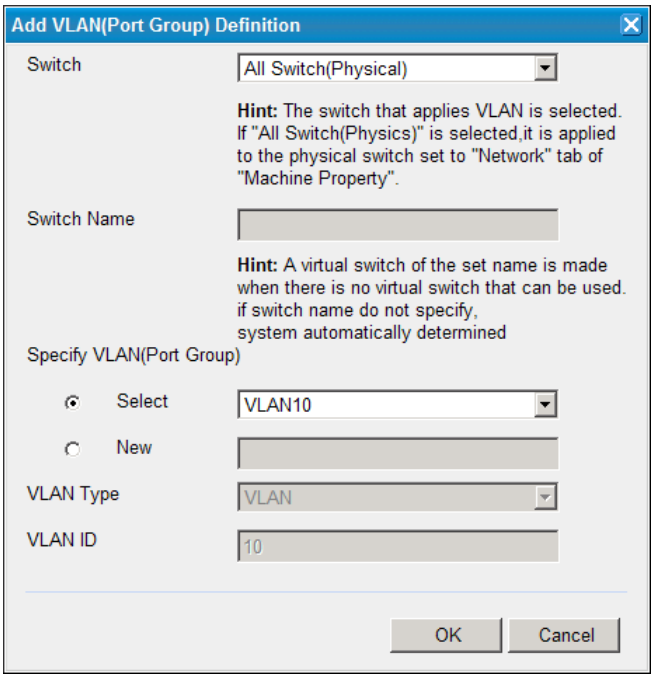
1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Network** in the **Resource** tree.
3. **Logical Network List** appears on the Main Window.
4. Click **Add Network** on the Configuration menu.

5. **Add Network** appears on the Main Window.



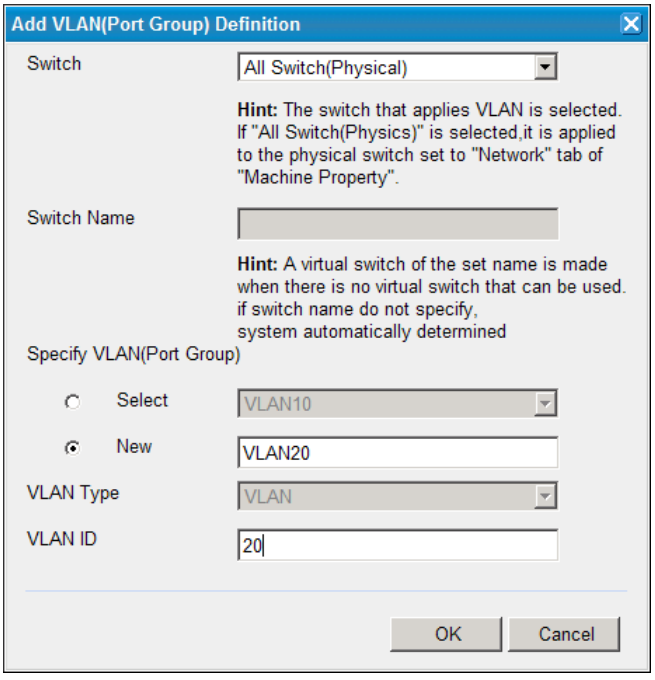
6. Enter the network name in the **Name** box. (Required)
7. Click the **Add** of the **Action** menu under **VLAN Definition List**.

8. The **Add VLAN Definition** dialog box appears.


Add VLAN(Port Group) Definition
Switch
All Switch(Physical)
Hint: The switch that applies VLAN is selected. If "All Switch(Physics)" is selected,it is applied to the physical switch set to "Network" tab of "Machine Property".
Switch Name
Hint: A virtual switch of the set name is made when there is no virtual switch that can be used. if switch name do not specify, system automatically determined
Specify VLAN(Port Group)
Select
VLAN10
New
VLAN Type
VLAN
VLAN ID
10
OK
Cancel

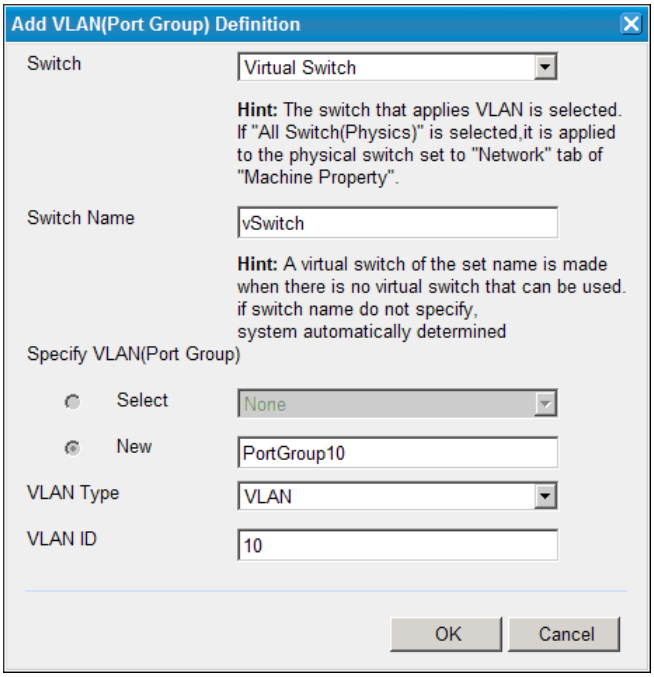
9. Select the switch to which the VLAN is to be applied in the **Switch** list. (Required)

<If the All Switch (Physical) or the Physical Switch is selected>


Add VLAN(Port Group) Definition
Switch
All Switch(Physical)
Hint: The switch that applies VLAN is selected. If "All Switch(Physics)" is selected,it is applied to the physical switch set to "Network" tab of "Machine Property".
Switch Name
Hint: A virtual switch of the set name is made when there is no virtual switch that can be used. if switch name do not specify, system automatically determined
Specify VLAN(Port Group)
Select
VLAN10
New
VLAN20
VLAN Type
VLAN
VLAN ID
20
OK
Cancel

1. Select **Select VLAN** or **Add VLAN**. If the **Select VLAN** is selected, select a VLAN in the pull down list. If the **Add VLAN** is selected, enter a VLAN name in the text box.
2. Enter the VLAN ID in the **VLAN ID** box.
3. Click **OK**.

<If the Virtual Switch is selected>

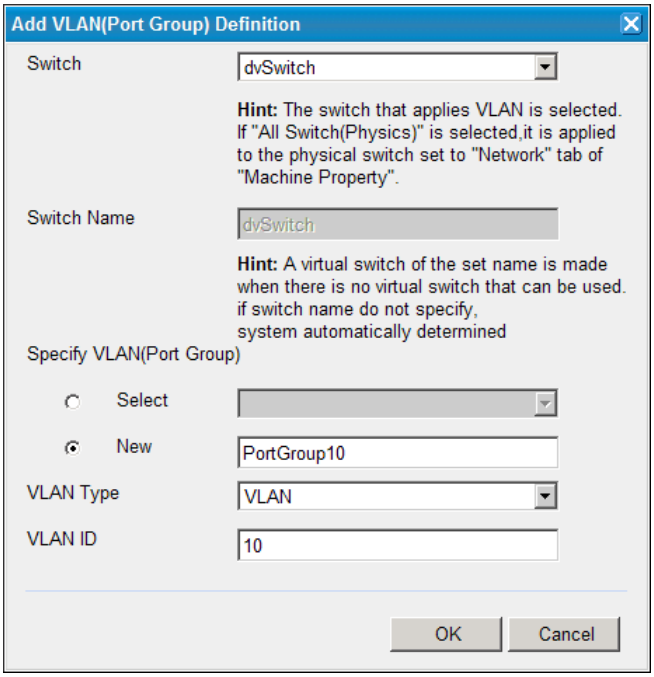

Add VLAN(Port Group) Definition
Switch
Virtual Switch
Hint: The switch that applies VLAN is selected. If "All Switch(Physics)" is selected,it is applied to the physical switch set to "Network" tab of "Machine Property".
Switch Name
vSwitch
Hint: A virtual switch of the set name is made when there is no virtual switch that can be used. if switch name do not specify, system automatically determined
Specify VLAN(Port Group)
Select
None
New
PortGroup10
VLAN Type
VLAN
VLAN ID
10
OK
Cancel

1. Enter the switch name in the **Switch Name** box. The system creates or selects an available virtual switch; therefore, this item does not have to be configured generally.

Note: If any available virtual switch exists, entering the switch name in this text box is ignored.

2. Enter the port group name to which the virtual NIC of the virtual machine is connected in the **Add VLAN** box. (Required)
3. To use VLAN on the virtual machine, select the **VLAN** in the **VLAN Type** list.
4. To use VLAN on the virtual machine, enter the VLAN ID in the **VLAN ID** box.
5. Click **OK**.

<If the Distributed Switch is selected>


Add VLAN(Port Group) Definition
Switch
dvSwitch
Hint: The switch that applies VLAN is selected. If "All Switch(Physics)" is selected,it is applied to the physical switch set to "Network" tab of "Machine Property".
Switch Name
dvSwitch
Hint: A virtual switch of the set name is made when there is no virtual switch that can be used. if switch name do not specify, system automatically determined
Specify VLAN(Port Group)
Select
New
PortGroup10
VLAN Type
VLAN
VLAN ID
10
OK
Cancel

1. Specify a VLAN. Select **Select VLAN** or **Add VLAN**. If the **Select VLAN** is selected, select VLAN (port group) in the pull down list. If the **Add VLAN** is selected, enter VLAN (port group) name in the text box.(Required)

   Configure the port group to which the virtual NIC of the virtual machine is connected.

2. Select a VLAN type in the **VLAN Type** list.

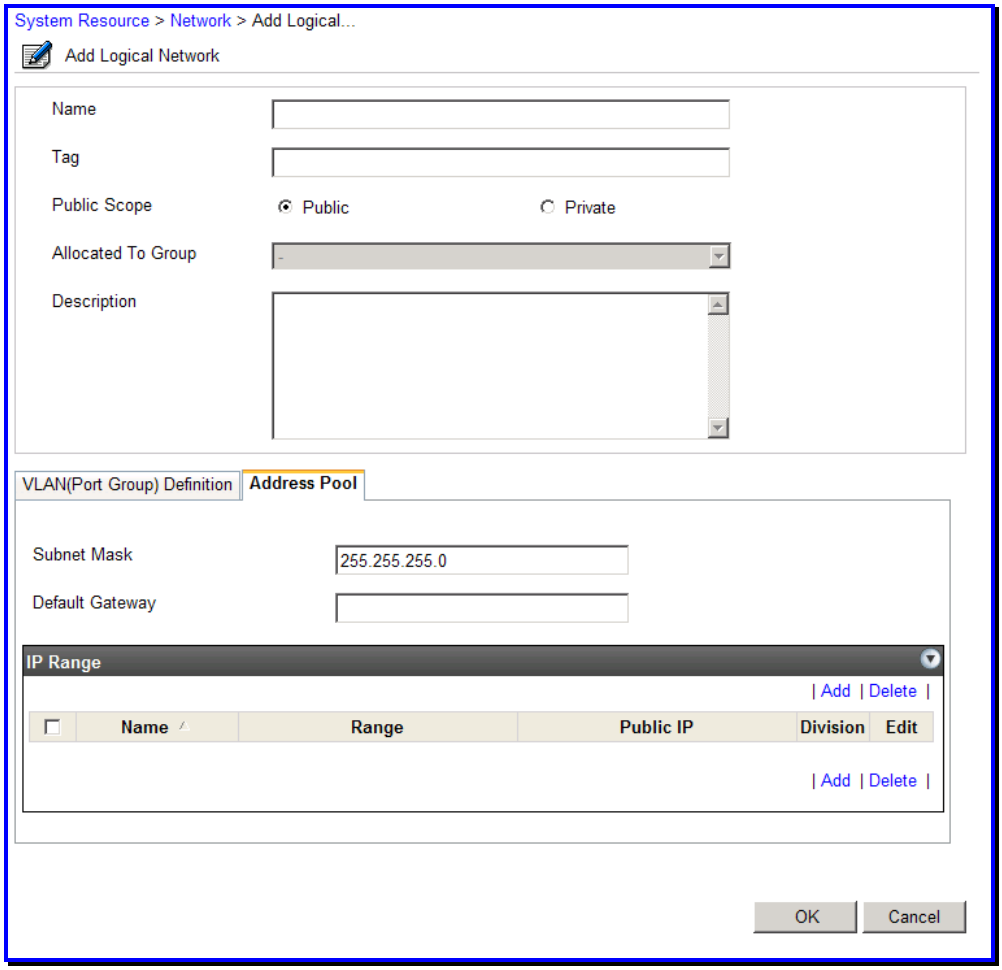
   To use VLAN in a virtual machine, configure the VLAN. If the **Select VLAN** is selected, the VLAN type of the selected VLAN (port group) appears.

3. If the **VLAN** is selected in the **VLAN Type** list, enter the VLAN ID in the **VLAN ID** box. If the **Private VLAN** is selected, select the **Private VLAN ID** in the pull down list.

   To use VLAN in a virtual machine, configure the VLAN ID. If the **Select VLAN** is selected, the VLAN ID of the selected VLAN (port group) appears.

4. Click **OK**.

10. Select the **Address Pool** tab.

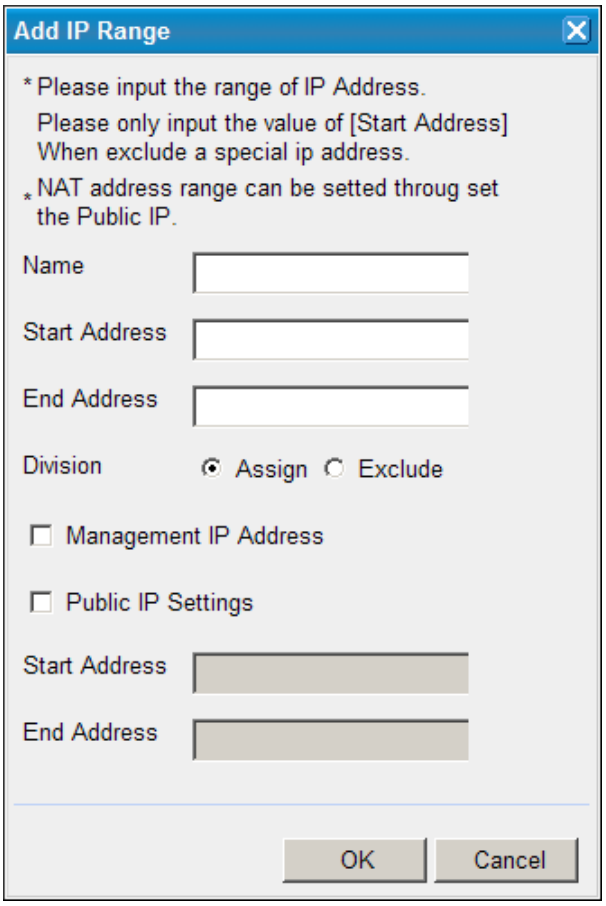


11. Enter the subnet mask in the **Subnet Mask** box.(Required)

12. Enter the default gateway in the **Default Gateway** box.

13. Click the **Add** of the Action menu under **IP Range**.

14. **Add IP Range** dialog box appears.



1. Enter the switch name in the **Name** box. (Required)
2. Enter the IP address in the **Start Address** box. (Required)
3. Enter the IP address in the **End Address** box.
4. Select the division from the **Division**.

   - Assign: generates IP addresses in this range
   - Exclude: does not generate IP addresses in this range

5. When planning to use the generated IP address as the management IP address, select the **Management IP Address** check box.
6. To relate the entered IP range to the Public IP, select the **Public IP Settings** check box, and enter the IP address in both the **Start Address** box and the **End Address** box.
7. Click **OK**.

15. Click **OK**.
16. The added network appears under **Network List**.

4.5. Registering a Load Balancer

This section provides the procedure of registering a load balancer, including a software load balancer, to be managed by SystemProvisioning and adding a load balancer group.

Note:

▪ If you have changed the settings of a load balancer in a compatible product, be sure to execute Collect Load Balancer on the Operation menu.

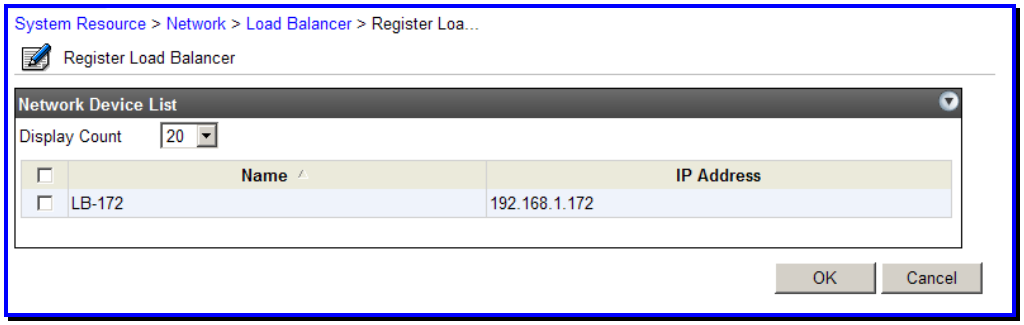
▪ The load balancer groups to which a real server is not registered are not collected.

▪ The load balancer group registered on the load balancer under management is not deleted even if it collects after the load balancer group was deleted on the compatible product side. Delete an unnecessary load balancer group.

4.5.1. Registering a Load Balancer

To register a load balancer as a managed target of SystemProvisioning, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Load Balancer** in the **Resource** tree.
3. Click **Register LB** on the Configuration menu.
4. **Register Load Balancer** appears on the Main Window.



5. The list of load balancers which are managed in MasterScope Network Manager which is registered as a subsystem is displayed under **Network Device List**. Select the check box of the load balancer to manage in SystemProvisioning.
6. Click **OK**.

4.5.2. Adding a Load Balancer Group

The following procedure adds a load balancer group, and configures a load balancer virtual server and load balancer real server to be the target of load distribution. Registering a load balancer group to an operation group enables you to add or delete a machine to or from a load balancer group automatically with configuration changes. Perform the following procedure to a load balancer group:

Reference: For registering a load balancer group to an operation group, see Subsection 5.4.7, "Configuring Settings on the LB Setting Tab."

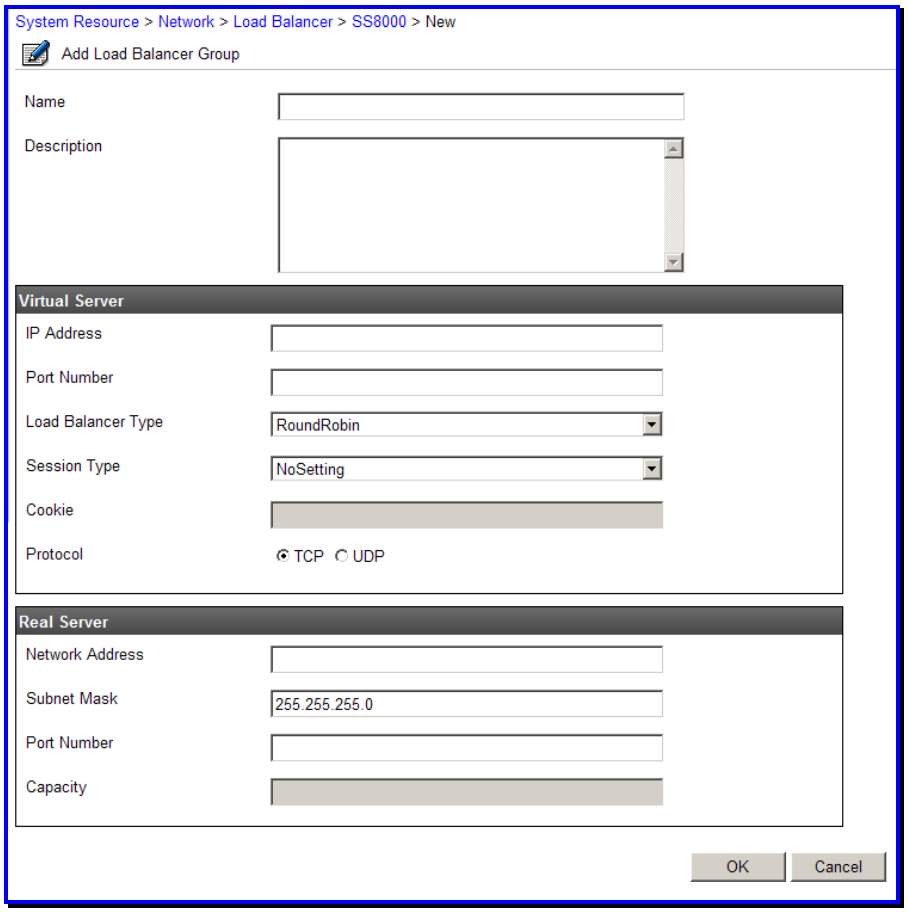
1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of the load balancer to add a load balancer group in the **Resource** tree.
3. Click **Add LB Group** on the Configuration menu.
4. **Add Load Balancer Group** appears on the Main Window.

Note:

▪ To control a load balancer, you need to set the IP address of the machine to control to belong to the range of network addresses of the real server. You cannot manage the machine with an IP address that is not in the range of network addresses of the real server from SystemProvisioning. Configure the IP address of the machine on the **Network** tab of the Host Setting in the **Operations** view. For configuring the host setting, see Section 5.8.2, "Configuring Settings on the Network Tab."

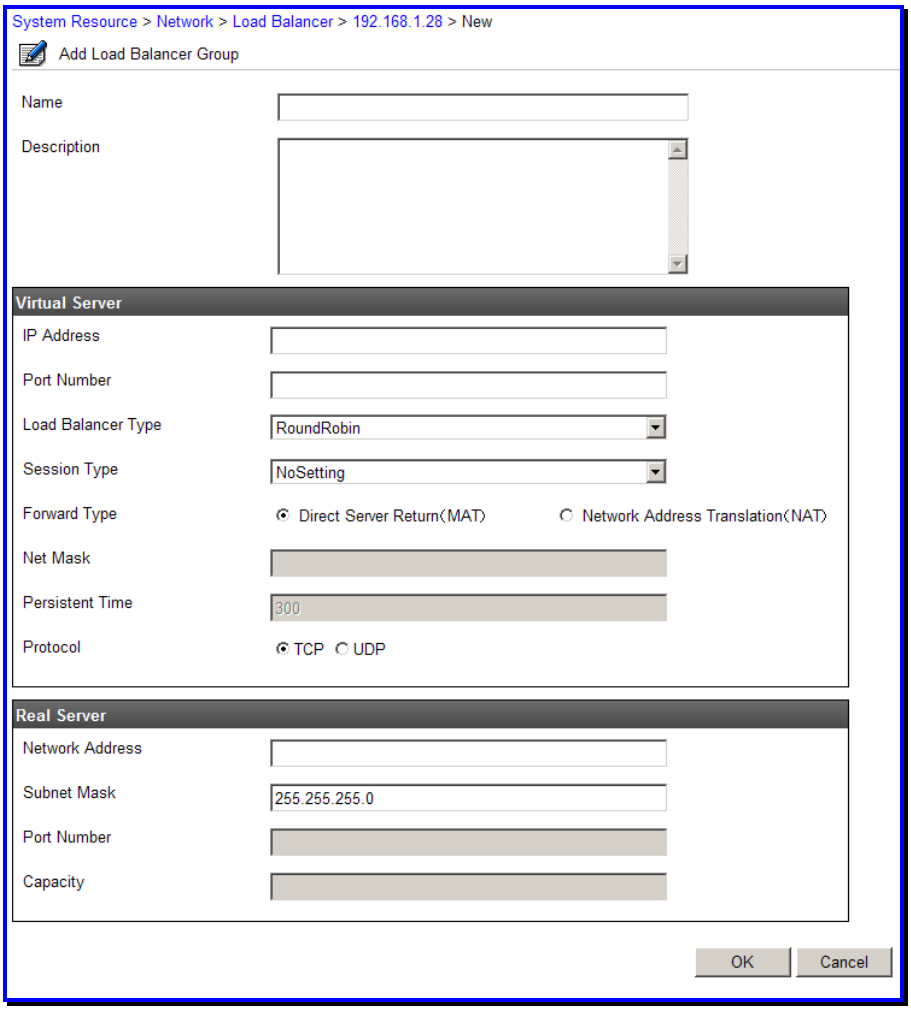
▪ The setting for each server can be created by setting the real server's subnet mask to "255.255.255.255".

< For load balancers managed by MasterScope Network Manager >



1. Type the name of the load balancer group in the **Name** box. (Required)
2. Specify each of items on the **Virtual Server** box.
3. Specify each of items on the **Real Server** box.
4. Click **OK**.

< For Linux Virtual Server >



1. Type the name of the load balancer group in the **Name** box. (Required)
2. Specify each of items on the **Virtual Server** box.

Note: You need to set the netmask in the **Net Mask** box when you set the **Persistent Type** to "RangeIp". However, you cannot set the netmask to “255.255.255.255". In this case, set the **Persistent Type** to "SingleIp".

3. Specify each of items on the **Real Server** box.

Note: The port number set to the real server is overwritten by the port number of the virtual server only when the Forward Type is set to Direct Server Return (MAT).

4. Click **OK**.

Note: Interfaces to set virtual server IP addresses are created for devices on Linux Virtual Server. The devices to be created are fixed to eth0, so you should set them again to meet your environment.

4.6. Registering Storage

This section provides the procedure of registering storage to be managed in SystemProvisioning.

Note:

・If you change settings, such as disk arrays, LDs, LD sets, and WWN (HBA), in storage management software, be sure to execute Collect Storage on the Operation menu from SystemProvisioning. However, if you change a LD name that has already assigned to a LD set, the storage information cannot be updated properly. If you change a LD name that has already assigned to a LD, disconnect the disk volume, release the LD from the LD set, and then, change the LD set name. After changing the LD name, connect to the disk volume again.

・If you upgraded from 1.3 or a former version of SigmaSystemCenter, the information of CLARiiON and Symmetrix set up in the version is not succeeded. You need to add CLARiiON and Symmetrix as a subsystem.

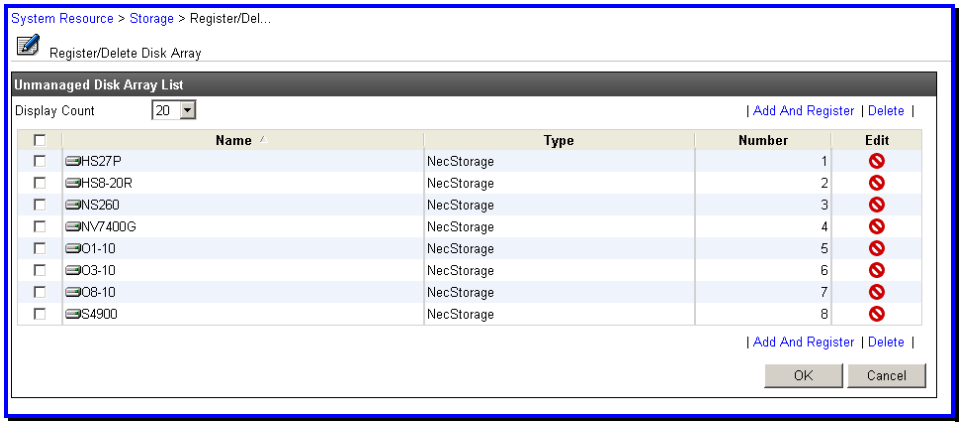
4.6.1. Registering a Disk Array (For NEC Storage and Symmetrix)

To register a disk array managed in the storage management software of NEC Storage and Symmetrix, which is registered as a subsystem, as a management target of SystemProvisioning, perform the following procedure:

Note: Do not change a name of a disk array registered in SigmaSystemCenter from NEC Storage Manager.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Storage** in the **Resource** tree.
3. Click **Register / Delete Disk Array** on the Configuration menu.

4. **Register / Delete Disk Array** appears on the Main Window.



5. Select the check box of a disk array to manage in SystemProvisioning under **Unmanaged Disk Array List**.
6. Click **OK**.
7. An icon of registered disk array is added under **Storage** in the **Resource** tree.

4.6.2. Registering a Disk Array (For CLARiiON)

To register a disk array managed in the storage management software of CLARiiON, which is registered as a subsystem, as a management target of SystemProvisioning, perform the following procedure:

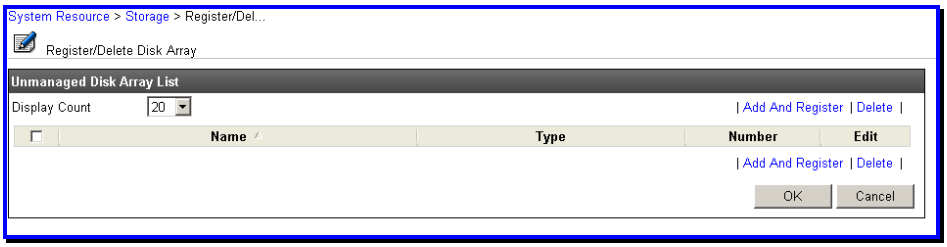
Note:

▪ You need to configure all values of IP Address, User Name, and Password.

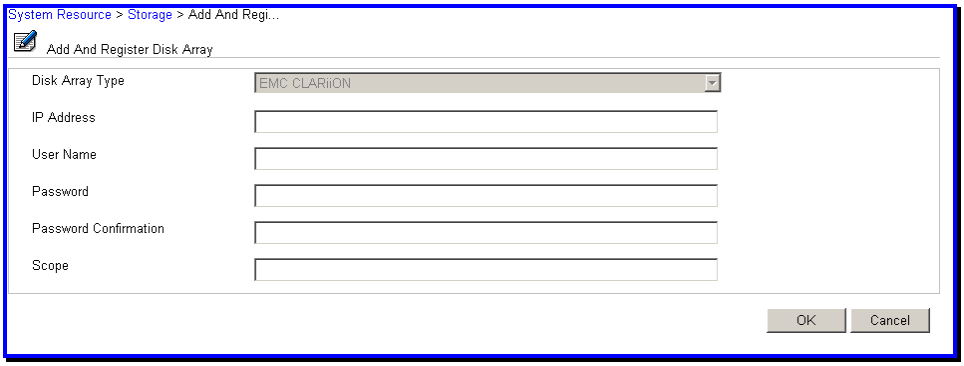
▪ If you do not configure either value of User Name or Password, Navicli is invoked. However, be sure not to use this option usually because it is to be used only for compatibility.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Storage** in the **Resource** tree.
3. Click **Register / Delete Disk Array** on the Configuration menu.

4. **Register / Delete Disk Array** appears on the Main Window.



5. Click **Add and Register** of the Action menu,
6. **Add And Register Disk Array** appears on the Main Window.



7. Enter IP address in **IP Address** box. (Required)
8. Enter a user name in the **User Name** box. (Required)
9. Enter a password in the **Password** box. (Required)
10. Enter the same password again in the **Password Confirmation** box for the confirmation. (Required)
11. Enter a value of scope (zero to two) in the **Scope** box.
12. Click **OK**.
13. An icon of registered disk array is added under **Storage** in the **Resource** tree.

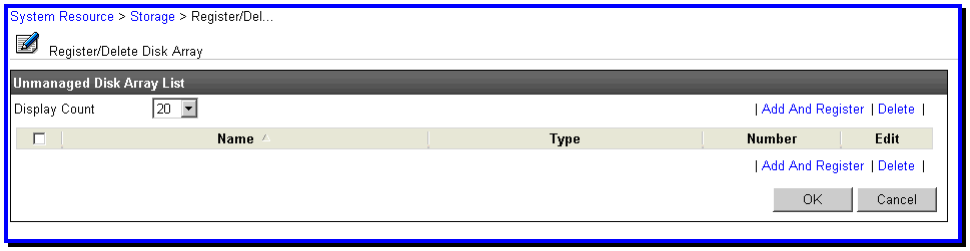
4.6.3. Registering a Disk Array (For NetApp)

Register the NetApp disk array which is registered to the subsystem as the target to be managed by SystemProvisioning as following procedure.

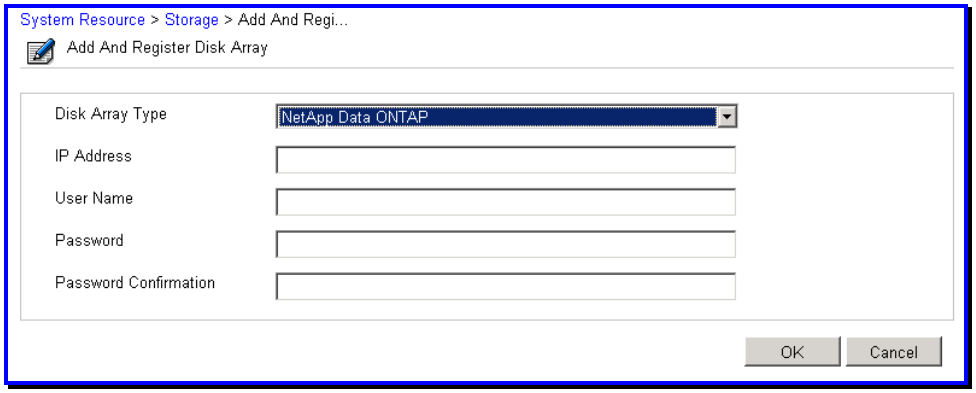
Note: You need to configure all values of IP Address, User Name, and Password.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Storage** in the **Resource** tree.

3. Click **Register / Delete Disk Array** on the Configuration menu.
4. **Register / Delete Disk Array** appears on the Main Window.



5. Click **Add and Register** of the Action menu,
6. **Add And Register Disk Array** appears on the Main Window.



7. Enter IP address in **IP Address** box. (Required)
8. Enter a user name in the **User Name** box. (Required)
9. Enter a password in the **Password** box. (Required)
10. Enter the same password again in the **Password Confirmation** box for the confirmation. (Required)
11. Click **OK**.
12. An icon of registered disk array is added under **Storage** in the **Resource** tree.

4.6.4. Registering a Disk Volume

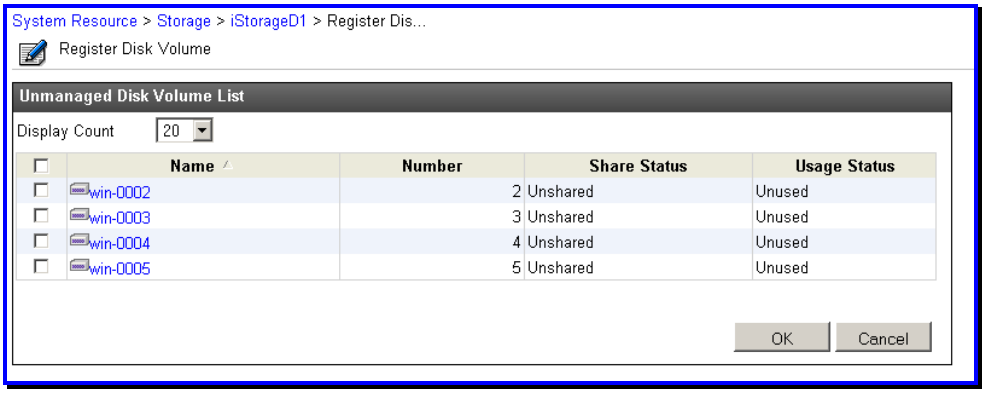
To register a disk volume as a management target of SystemProvisioning, perform the following procedure:

Note: *Disk volume* is represented as: a *LD* in NEC Storage, a *LUN* in CLARiiON, and a *logical device* in Symmetrix, *Volume* in NetApp.

---

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of disk array to register in the **Resource** tree.

3. Click **Register Disk Volume** on the Configuration menu.
4. **Register Disk Volume** appears on the Main Window.

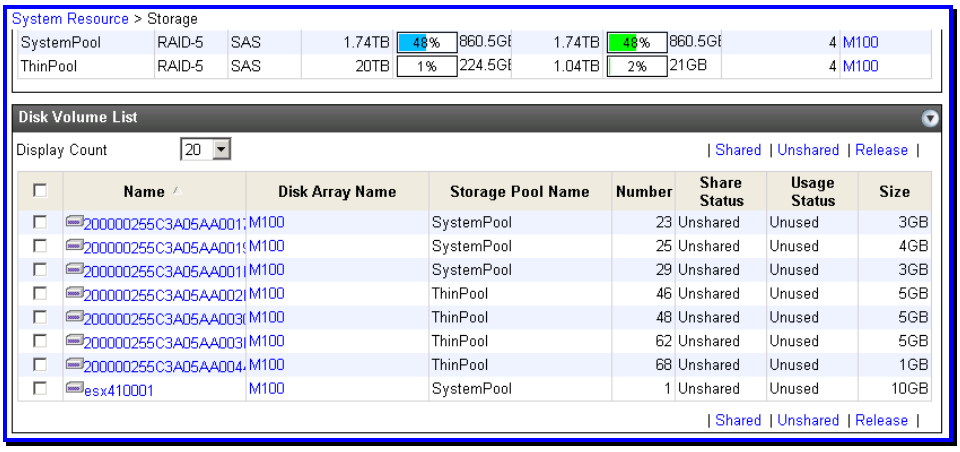


5. Select the check box of a disk volume to manage in SystemProvisioning under **Unmanaged Disk Volume List**.
6. Click **OK**.
7. The registered disk volume appears under **Disk Volume List**.

4.6.5. Configuring a Disk Volume to Shared

To configure a disk volume to shared, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Storage** in the **Resource** tree.
3. **Disk volume list** is displayed below on the Main Window.


System Resource > Storage
SystemPool RAID-5 SAS 1.74TB 48% 860.5GB 1.74TB 48% 860.5GB 4 M100
ThinPool RAID-5 SAS 20TB 1% 224.5GB 1.04TB 2% 21GB 4 M100
Disk Volume List
Display Count 20
| Shared | Unshared | Release |
Name
Disk Array Name
Storage Pool Name
Number
Share Status
Usage Status
Size
200000255C3A05AA001 M100 SystemPool 23 Unshared Unused 3GB
200000255C3A05AA001 M100 SystemPool 25 Unshared Unused 4GB
200000255C3A05AA001 M100 SystemPool 29 Unshared Unused 3GB
200000255C3A05AA002 M100 ThinPool 46 Unshared Unused 5GB
200000255C3A05AA003 M100 ThinPool 48 Unshared Unused 5GB
200000255C3A05AA003 M100 ThinPool 62 Unshared Unused 5GB
200000255C3A05AA004 M100 ThinPool 68 Unshared Unused 1GB
esx410001 M100 SystemPool 1 Unshared Unused 10GB
| Shared | Unshared | Release |

4. Select the check box of the disk volume to share under **Disk volume list**,
5. Click **Shared** of the Action menu under **Disk Volume List**.
6. A confirmation message appears. Click **OK**.

7. **Shared** appears on the **Share Status** of the configured disk volume under **Disk Volume List**.

You can also specify a disk volume to share by selecting a target disk array. To do so, click the target disk array in the **Resource** tree, and specify the disk volume under **Disk Volume List** on the displayed details of the disk volume.

4.6.6. Registering a HBA and Path Information (For CLARiiON, Symmetrix)

To register a HBA managed machine and the path information between the HBA managed machine and disk arrays by using ssc command, perform the following procedure:

Note: Register a disk array before registering its path information.

1. Displaying the path information of a disk array

   Display the path information of the disk array by using show diskarraypath command, the ssc command. For the detail of the path information displayed by this command, see *SSC Command Reference*.

   ```
   ssc show diskarraypath DiskArrayName
   ```

2. Registering the HBA address (WWPN, WWNN) and the path of a disk array to which the HBA connects

   Register the HBA address (WWPN, WWNN) and the path of the disk array to which the HBA connects to SigmaSystemCenter by using set hba command, the ssc command. For the detail of the HBA address (WWPN, WWNN) and the path of the disk array to which the HBA connects, see *SSC Command Reference*.

   ```
   ssc set hba DiskArrayName DiskArrayPath WWPN
   ```

   Note: If CLARiiON is used, WWNN must be specified. If there are multiple pairings of a HBA and its disk array path, be sure to register all the pairings.

4.7. Registering a Machine

This section provides the procedure of registering a machine to be managed in SystemProvisioning.

4.7.1. About Registering a Machine

From physical machines or virtual machines registered in DPM, VMware vCenter Server, XenServer Pool Master or Hyper-V Cluster, select a machine to be managed in SystemProvisioning and register it to SystemProvisioning. Then, the following operations can be executed:

- Various operations including Start and Shutdown can be executed to the registered machine in the Resource view
- The registered machine can be used as a machine resource in the Operations view

Because virtual machines on ESXi, Hyper-V single server or KVM can be automatically managed in SystemProvisioning when ESXi, Hyper-V single server or KVM is registered in the Virtual view, the virtual machines do not have to be registered in the Resource view. For how to register the ESXi, Hyper-V single server or KVM, see Section 4.3, "Managing ESXi, Hyper-V and KVM."

4.7.2. Adding a Resource Group

You can add a resource group to which managed machines before registration belong to. To add a resource group, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Machine** or the icon of the group to which you want to add a resource group in the **Resource** tree.
3. Click **Add Resource Group** on the Configuration menu.
4. **Add Resource Group** appears on the Main Window.

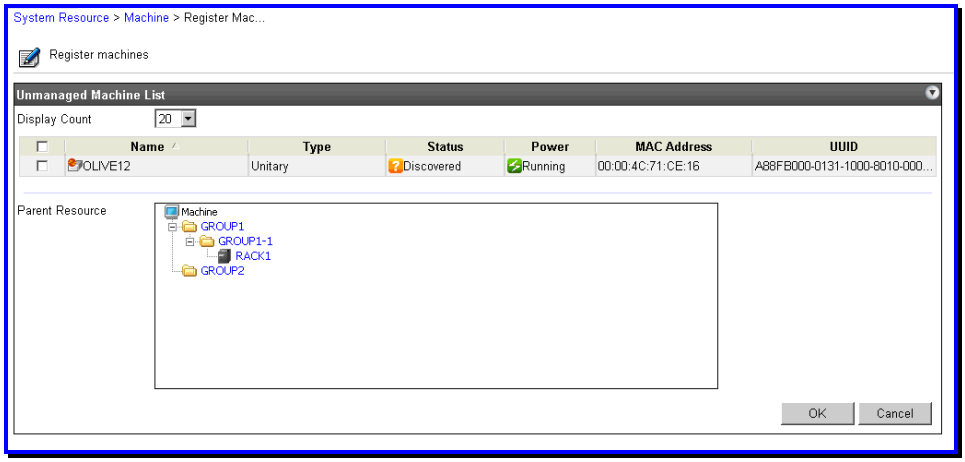
5. Enter a resource group name in the **Name** box. (Required)
6. Click **OK**.

You can also manage managed machines in a rack unit with the same procedure.

4.7.3. Registering a Machine

To register a machine as a managed target of SystemProvisioning and specify a resource group or rack when registering a machine, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. In the **Resource** tree, click the **Machine**, the icon of the resource group, or the icon of the rack to register a machine.
3. Click **Register machines** on the Configuration menu.
4. **Resister machines** appears on the Main Window.



5. The list of machines registered to DPM, VMware vCenter Server, XenServer Pool Master, or Hyper-V Cluster which is added as a subsystem is displayed under **Unmanaged Machine List**. Select the check box of the machine to register as a management target of SystemProvisioning in the **Unmanaged Machine List**.
6. If you do not specify a resource group or rack in the procedure 2, the **Parent Resource** tree is displayed. Select the resource group or rack in the tree.
7. Click **OK**.

4.8. Preparing Distribution Software

This section provides the procedure of registering or checking distribution software that is used by SystemProvisioning. Distribution software includes the following three kinds:

- Scenario (OS image or patch and application)
- Template
- Local script

Reference: For details of distribution software, see Section 1.2, "Software Distribution" in *SigmaSystemCenter Overview Reference Guide*.

4.8.1. Checking a Scenario That Can Be Used From SystemProvisioning

If you install OSs and applications, or distribute patches to a managed machine using DPM, you can use a scenario that you create in DPM. The information of the scenarios that are managed in DPM which is registered as a subsystem is reflected to SystemProvisioning. To check the information is reflected, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Software** in the **Resource** tree.
3. **Summary Information** appears on the Main Window. Click **DPM Collect** on the Operation menu.
4. After the Job of collecting DPM finishes, click **Refresh** on the Operation menu to update the view to the latest status.
5. **Summary Information** appears on the Main Window. Scenarios are added in the **OSImage**, **Backup Task**, or **Application and Update** folder.
6. Click a scenario name to display the base information of the scenario on the Main Window.

4.8.2. Checking a Template That Can Be Used From SystemProvisioning

Check a template that can be used from SystemProvisioning. The template is used when you create a virtual machine from SystemProvisioning. If you manage a virtual machine on VMware ESX or XenServer, the information of the templates that are managed in vCenter Server or XenServer Pool Master which is registered as a subsystem is reflected to SystemProvisioning. If you manage a standalone ESXi, Hyper-V or KVM, a template exists in SystemProvisioning. To check the information is reflected, perform the following procedure:

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Software** in the **Resource** tree.
3. **Summary Information** appears on the Main Window.

Note: The information of templates managed in vCenter Server or XenServer Pool Master is reflected automatically. If not, select vCenter Server or XenServer Pool Master in the **Virtual** view and click **Refresh** on the Operation menu.

4. If you click **Template** in the **Summary Information**, **Template List** appears on the Main Window.
5. Click the name of the template to display **Base Information** of the template on the Main Window.

4.8.3. Adding a Local Script

When activating, changing the usage of, or replacing a managed machine, you can use a local script if you want to execute a specific process that depends on system configuration or environment on a management server. When you use a local script, perform the following procedure to add the script:

Note: Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

1. Store a local script, a .bat file, in the following folder.

   A folder where SystemProvisioning is installed\Script

   Note: The default folder is "%ProgramFiles%\NEC\PVM\Script".

2. Click **Resource** on the Title bar to switch to the **Resource** view.
3. Click the **Software** in the **Resource** tree.
4. **Summary Information** is displayed on the Main Window. Click **Script Collect** on the Operation menu.
5. After the Job of collecting scripts finishes, click **Refresh** on the Operation menu to update the view to the latest status.
6. **Summary Information** appears on the Main Window. The scripts are added in the **Script** folder.
7. Click a local script name to display the base information of the local script on the Main Window.

4.9. Configuring Machine Property Setting

This section explains how to configure a registered machine's unique information on the Machine Property Setting.

- General Tab

  Configure the general information, such as a model name and a unit name.

- Network Tab

  Configure the NIC to use, and relates the NIC and a switch (port).

- Storage Tab

  Configure the setting for HBA to use.

- Software Tab

  Configure the setting for distributing software to the machine. The timing to distribute software also can be configured.

- Software Distribution History Tab

  The software distribution history can be checked from here.

- Account Tab

  If the machine account is set here, management with each protocol will be available. The currently settable account type is OOB Management, and the protocol is only IPMI.

To configure the Machine Property Setting, perform the following procedure:

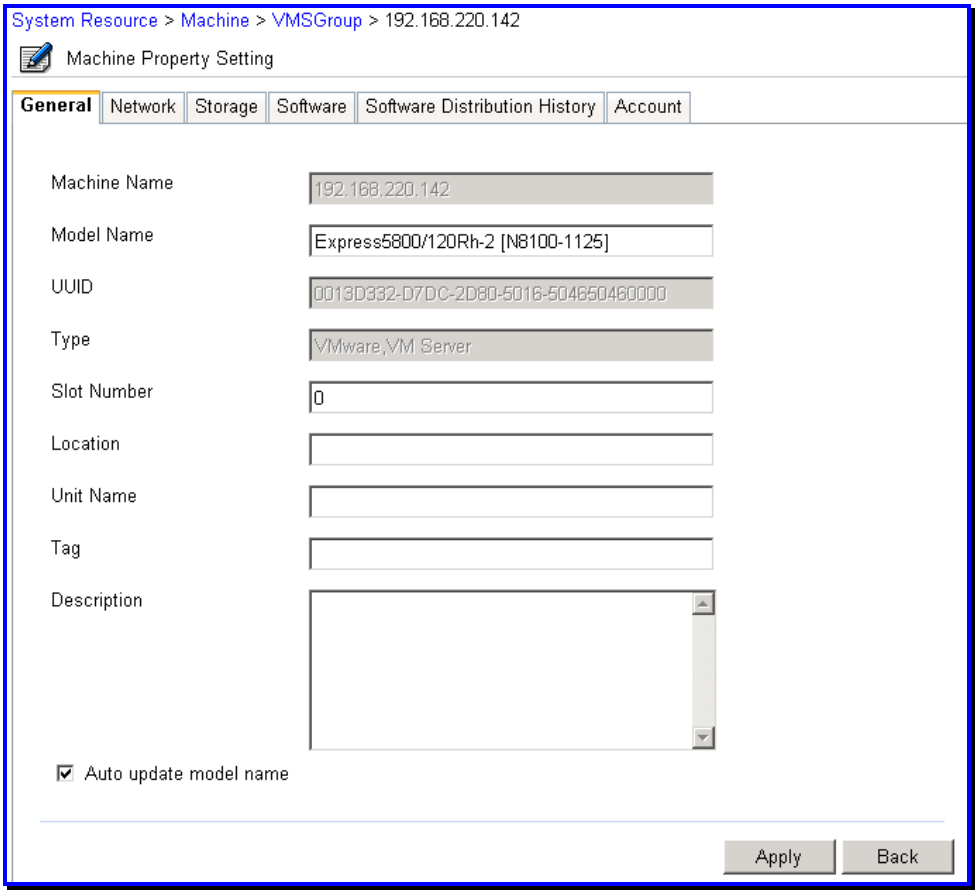
1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of the machine to configure in the **Resource** tree.
3. Click **Property** on the Configuration menu.
4. **Machine Property Setting** appears on the Main Window.

To configure the setting on each tab, perform the procedures in the following subsections.

4.9.1. Configuring Settings on the General Tab

To configure settings on the General tab, perform the following procedure:

1. Display the **Machine Property Setting** window, and click the **General** tab.



2. The value set in the **Model Name** box will be used as the hardware recognition information while using a shared pool. The value collected from a subsystem such as NEC ESMPRO Manager will be set automatically if the machine is activated in the group. To set the name here before starting operation, enter the machine model name in the **Model Name** box.

Reference: For details of a shared pool, see Subsection 1.1.8, "What is a Pool Machine?"

3. Enter an actual slot number in the **Slot Number** box.

Note: The slot number cannot be set from DPM 6.0 but can be set from SigmaSystemCenter. The slot number, however, is not used in the SigmaSystemCenter operation.

4. Enter an arbitrary installation location of a physical machine or virtual machine server in the **Location** box. The disk information of the stored location of a virtual machine cannot be edited.
5. Enter the name to be managed in SigmaSystemCenter in the **Unit Name** box. After entering the name in the **Unit Name** box, resource names under **Host List** and the **Group Pool** box on the **Operations** view are displayed as the entered unit name. The machine name changes by replacing machine, but the unit name does not change.
6. To classify managed machines visually by the keyword on each window of resource groups, smart groups, and racks, enter the keyword in the **Tag** box.

Reference: See Section 9.6, "Machine Management with Tag Cloud" for details of a tag cloud.

7. To prevent SystemProvisioning from automatically overwriting the model name in some situations, for example, when you want to use a manually configured model name, clear the **Auto update model name** check box.
8. Click **Apply**.

4.9.2. Configuring Settings on the Network Tab

To configure settings on the Network tab of the Machine Property Setting, perform the following procedure:

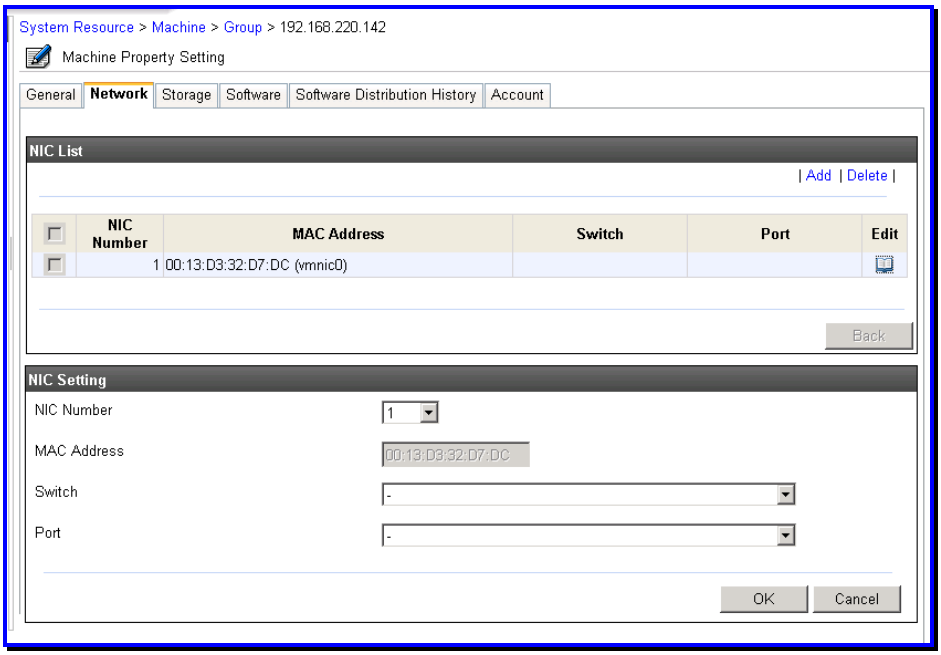
Note:

▪ To execute the VLAN control of switches, both this setting and the Network Setting tab on the Group Property Setting must be configured. For how to configure the Network Setting tab on the Group Property Setting, see Subsection 5.4.6, "Configuring Settings on the Network Setting Tab."

▪ To control a virtual network on a virtual machine server, both this setting and the Virtual Network tab on the Model Property Setting must be configured. For how to configure the Virtual Network tab on the Model Property Setting, see Subsection 5.7.6, "Configuring Settings on the Virtual Network Tab."

1. Display the **Machine Property Setting** window, and click the **Network** tab.
2. To add a NIC to the **NIC List**, click **Add** of the Action menu.

3. **NIC Setting** is displayed below the **NIC List**.



4. Select the NIC number in the **NIC Number** list.

Note: To use a blank for the NIC number, set an arbitrary number here, and then, clear it by editing.

---

5. Enter the MAC address in the **MAC Address** box.

Note:

▪ Enter a MAC address in the format of "00:00:00:00:00:00".

▪ Register the MAC address of the managed machine that is registered to DPM as the NIC Number 1.

---

6. Select the switch in the **Switch** list.
7. Select the port to connect in the **Port** list.
8. Click **OK**, and the NIC will be added under **NIC List**.
9. Click **Back** to display the details of the machine on the Main Window.

4.9.3. Configuring Settings on the Storage Tab

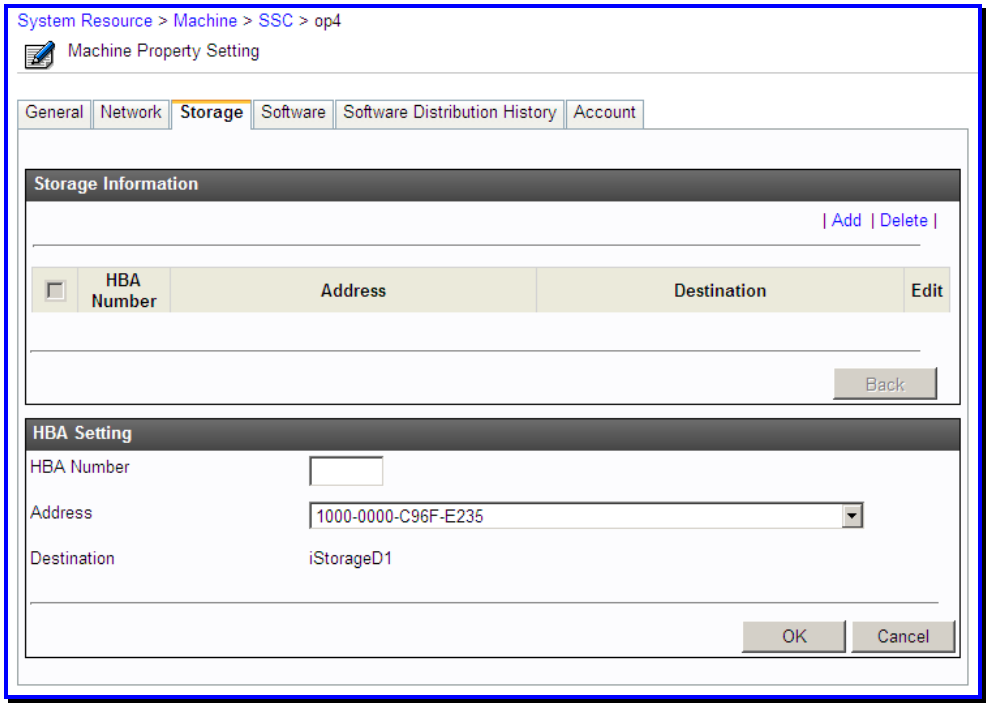
To configure settings on the Storage tab of the Machine Property Setting, perform the following procedure:

Note:

▪ To control storage, both this setting and the Storage tab on the Host Setting must be configured. For how to configure the Storage tab on the Host Setting, see Subsection 5.8.3, "Configuring Settings on the Storage Tab." The host setting can be configured on the Storage tab of the group / model if the shared disk is used.

▪ For CLARiiON and Symmetrix, register the HBA address and its path to SigmaSystemCenter beforehand by using set hba command, the ssc command. For how to register the HBA and its path information, see Subsection 4.6.6, "Registering a HBA and Path Information (For CLARiiON, Symmetrix)."

1. Display the **Machine Property Setting** window, and click the **Storage** tab.
2. To add storage information to **Storage Information**, click **Add** of the Action menu.
3. **HBA Setting** is displayed below the **Storage Information**.



4. Type the HBA number in the **HBA Number** box. (Required)

   When configuring the setting for disk volume on the **Storage** tab of the Host Setting, specify the value entered here.

5. If a FC interface is used, select the WWN of the HBA that is connected to the machine in the **Address** list.

   If the iSCSI interface is used, select the iSCSI initiator name of the HBA that is connected to the machine. (Required)

   Note: To replace a machine, this setting must be configured not only on the original machine but also on the new machine.

6. Click **OK**. The storage information is added to **Storage Information**.
7. Click **Back** to display the details of the machine on the Main Window.

4.9.4. Configuring Settings on the Software Tab

On the Software tab of the Machine Property Setting, the software that runs Sysprep towards a replica VM while creating a template or an image can be set. For the master VM of the template which to be customized by DPM, register the software running Sysprep to the Distribution Timing: *When replica creation*.

4.9.5. Checking the Software Distribution History Tab

On the Software Distribution History tab of the Machine Property Setting, the list of already distributed software is displayed.

Reference: To delete histories that are before distributing the latest OS image, delete them by using the command to delete software distribution histories (ssc delete history), the ssc command. For the detail of the command, see *SSC Command Reference*.

4.9.6. Configuring Settings on the Account Tab

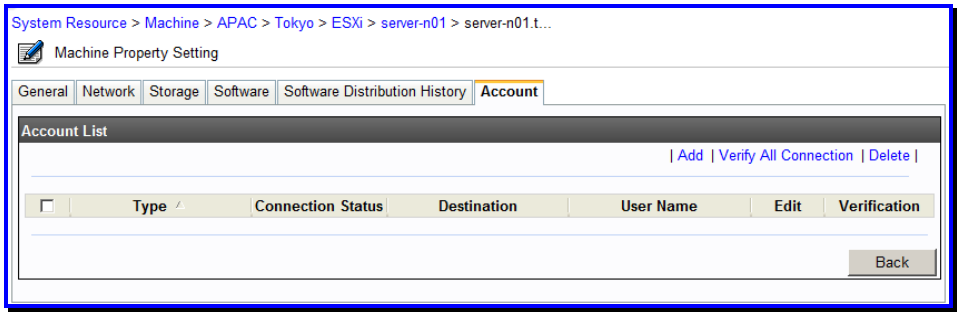
To execute OOB Management through SigmaSystemCenter on the machine that is prepared in Section 3.10, "Preparing for the Use of Out-of-Band (OOB) Management", an account of OOB Management must be registered.

To configure settings on the Account tab of the Machine Property Setting, perform the following procedure:

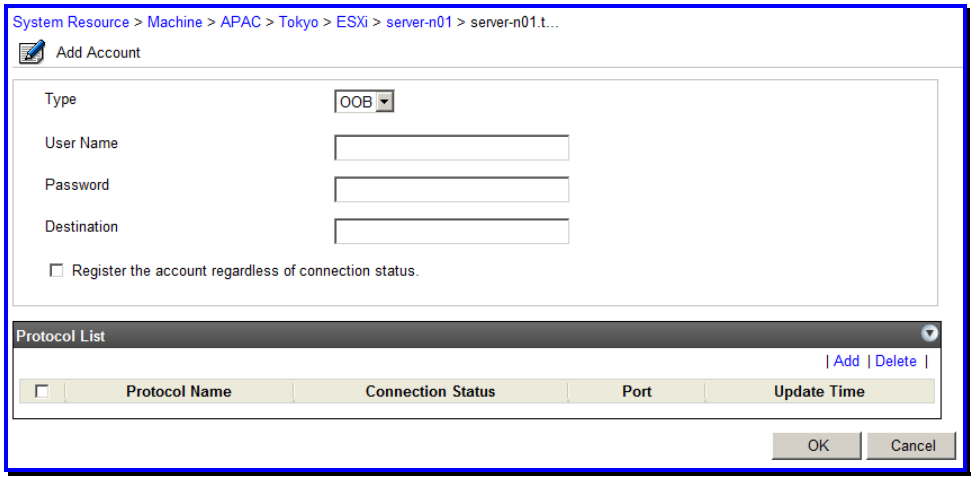
Note: If an account of OOB Management registered in SigmaSystemCenter is changed on the target machine to be monitored, connecting to the machine fails, which cause unavailability of the control functionality by OOB Management. In that case, update the account of OOB Management registered in SigmaSystemCenter.

Reference: An account of OOB Management can be registered also by using the ssc command. For how to register the account with ssc command, see *SSC Command Reference*.

1. Display the **Machine Property Setting** window, and click the **Account** tab.
2. To add an **account to Account List,** click the **Add** of the A**ction me**nu.



3. **Add Account** window appears. Select the account type in the **Type** list. Only **OOB** is selectable.



4. In the **User Name** box, enter the user name.
5. In the **Password** box, enter the password.

Note: Enter the same user name and the password as those of the account registered to BMC in Subsection 3.10.2, "Creating Administrator Account in BMC."

6. In the **Destination** box, enter the host name or IP address to connect.

7. Select the **Register the account regardless of connection status** check box if you are going to register an account of the machine that does not respond to the IPMI connection, such as when the preparation described in Section 3.10, "Preparing for the Use of Out-of-Band (OOB) Management" is not completed.

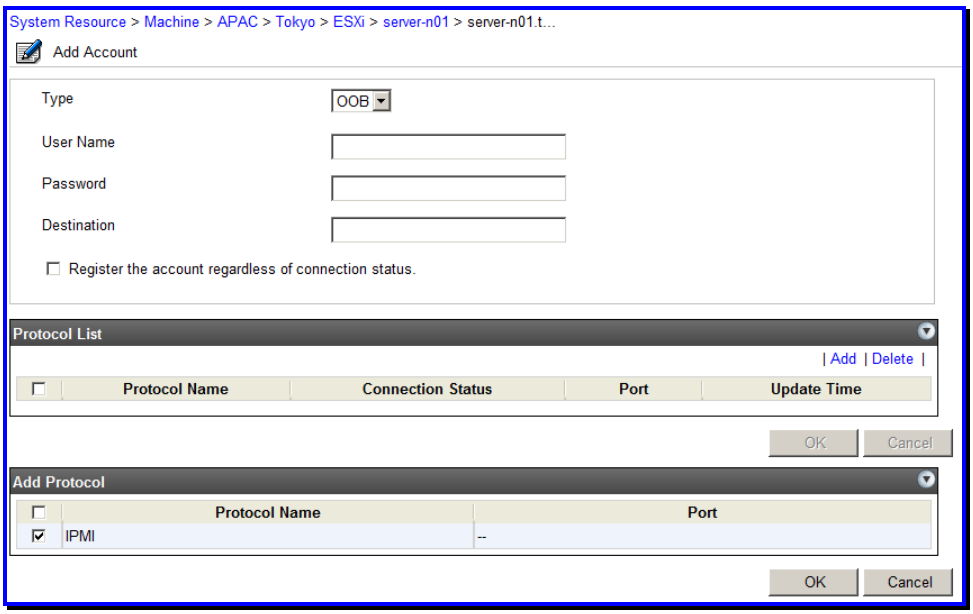
Note: When an account is registered with selecting the **Register the account regardless of connection status** check box, the account is registered even if it cannot connect to BMC. In this case, neither verification of connectivity with BMC nor IPMI information acquisition is executed.

Therefore, OOB management might not work properly.

Click **Verification** at the **Account** tab on the **Machine Property Setting** window before starting machine operation.

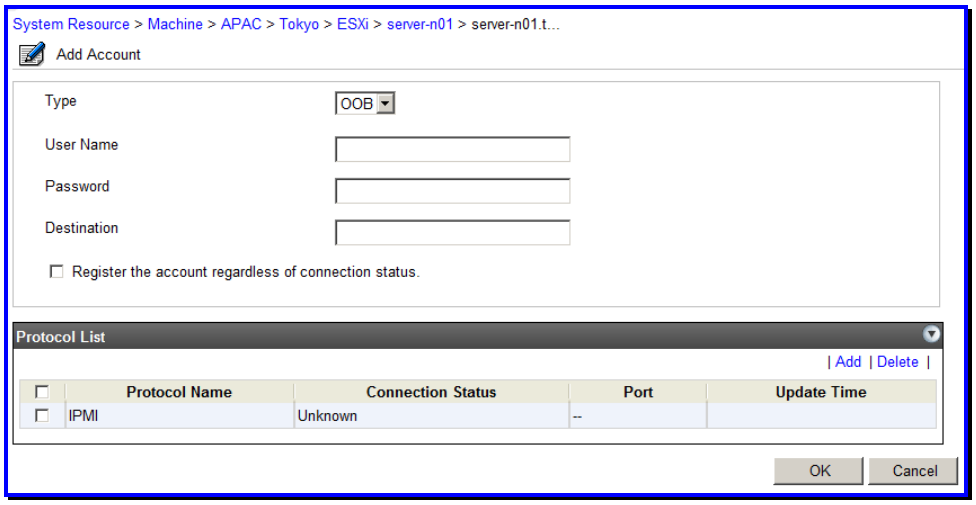
---

8. Click the **Add** of the Action menu if you are going to add protocols to **Protocol List**.
9. **Add Protocol List** is displayed below **Protocol List**.

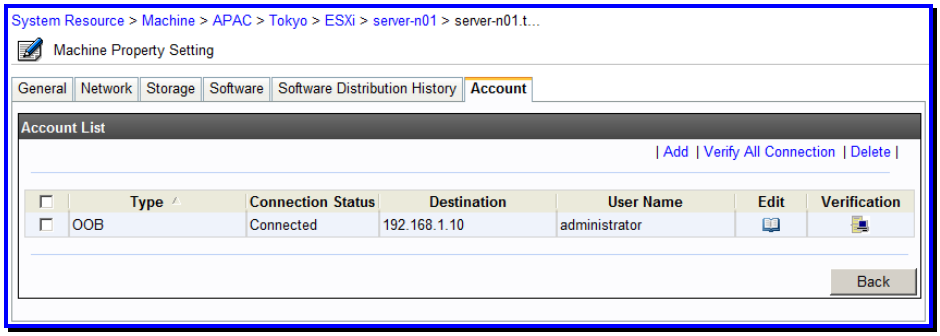


10. **IPMI** protocol is selected by default. Click **OK**.

11. **IPMI** protocol is added to **Protocol List**.



12. Click **OK**, and trying to the protocol connection starts. If it is success, the screen transits to the **Account** tab, and the account is added to **Account List**. When connection with the IPMI protocol is confirmed, collecting the machine information is also executed.



Note: Even if collecting the machine information fails, the account and the protocol are registered. After checking results of job executions and operation logs, execute sensor collection separately.

13. To confirm that the account has been registered properly, check that **Connected** is displayed on the **Connection Status** under **Account List**.

Note: If the **Connected** is not displayed, OOB Management is unavailable.

4.10. Creating a Policy

You can configure what kind of process the system performs automatically to restore the failed status for a failure event that software, such as NEC ESMPRO Manager, vCenter Server, and System Monitor - Performance Monitoring Services, detected. This setting is called a *policy*.

SigmaSystemCenter has multiple policy templates, which we call Standard Policy, to which settings to cope with general errors are configured in advance. You can use the Standard Policy without any customization or create a new policy out of it and use it.

In addition, you can export settings set to a policy to a file in the xml format, import the settings when setting up the environment on other management server.

Reference: Configure a policy created with the procedure described in this section to an operation group or a model.

▪ To configure the policy to an operation group, see Subsection 5.4.1, "Configuring Settings on the General Tab."

▪ To configure the policy to a model (physical), see Subsection 5.5.1, "Configuring Settings on the General Tab."

▪ To configure the policy to a model (virtual machine), see Subsection 5.6.1, "Configuring Settings on the General Tab."

▪ To configure the policy to a model (virtual machine server), see Subsection 5.7.1, "Configuring Settings on the General Tab."

4.10.1. Standard Policy

There are following eleven types in the Standard Policy:

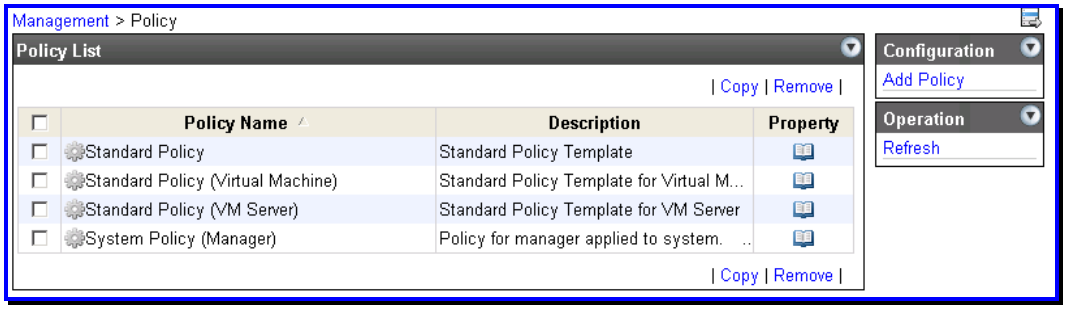
Policy Name	Managed Target	Registered by Default
Standard Policy	Physical machines other than ones used as virtual machine servers	OK
Standard Policy (N+1)	Physical machines other than ones used as virtual machine servers * If the operations correspond to N+1 replacing	-
Standard Policy (Virtual Machine)	Virtual Machine	OK
Standard Policy (VM Server)	Virtual Machine Server	OK
Standard Policy (VM Server Predictive)	Virtual Machine Server * If the Predictive event monitoring is enabled	-
Standard Policy (VM Server Power save)	Virtual Machine Server * If corresponding to the power saving	-
Standard Policy (VM Server ESXi)	Virtual Machine Server (ESXi)	-
Standard Policy (VM Server Hyper-V)	Virtual Machine Server (Hyper-V)	-
Standard Policy (VM Server Hyper-V Predictive)	Virtual Machine Server (Hyper-V) * If the Predictive event monitoring is enabled	-
Standard Policy (VM Server Hyper-V Power save)	Virtual Machine Server (Hyper-V) * If corresponding to the power saving	-
System Policy (Manager)	A manager that manages resources used by SigmaSystemCenter (e.g. vCenter Server).	OK

Standard policies that are registered as "OK" by default are registered when the edition license is applied.

The System Policy (Manager) is automatically applied to managers. One System Policy (Manager) exists on one system. Configuring the System Policy on a group is unnecessary because it is not applied for managed machines.

Do not delete the System Policy (Manager) or do not change its name. If its name is changed, it is not automatically applied because it is not recognized as the System Policy (Manager). If the System Policy (Manager) should be deleted by mistake or its name should be changed, it can be restored by restarting the PVMService. It cannot be added from the Add Policy menu.

To disable the System Policy (Manager), disable the monitoring event setting.

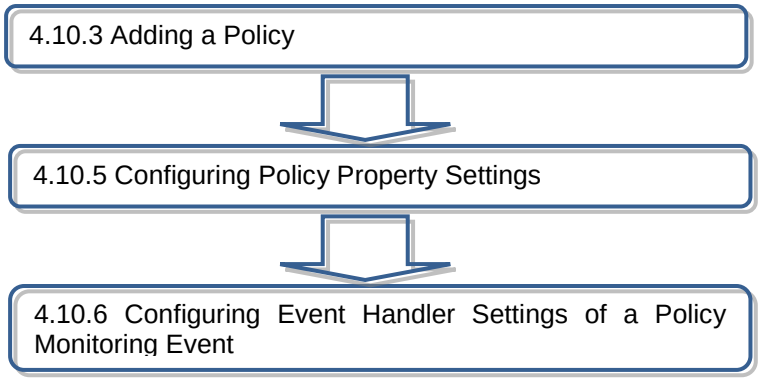


Note: Create the Standard Policies that are not registered by default from the Add Policy window.

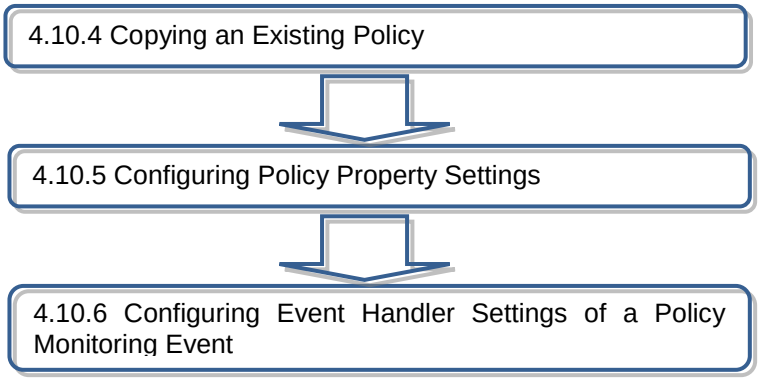
4.10.2. Creating a Policy

There are two ways to create a policy; creating a new policy and creating a policy by copying an existing policy.

- Creating a new policy


4.10.3 Adding a Policy
4.10.5 Configuring Policy Property Settings
4.10.6 Configuring Event Handler Settings of a Policy Monitoring Event

- Creating a policy by copying an existing policy and changing settings.

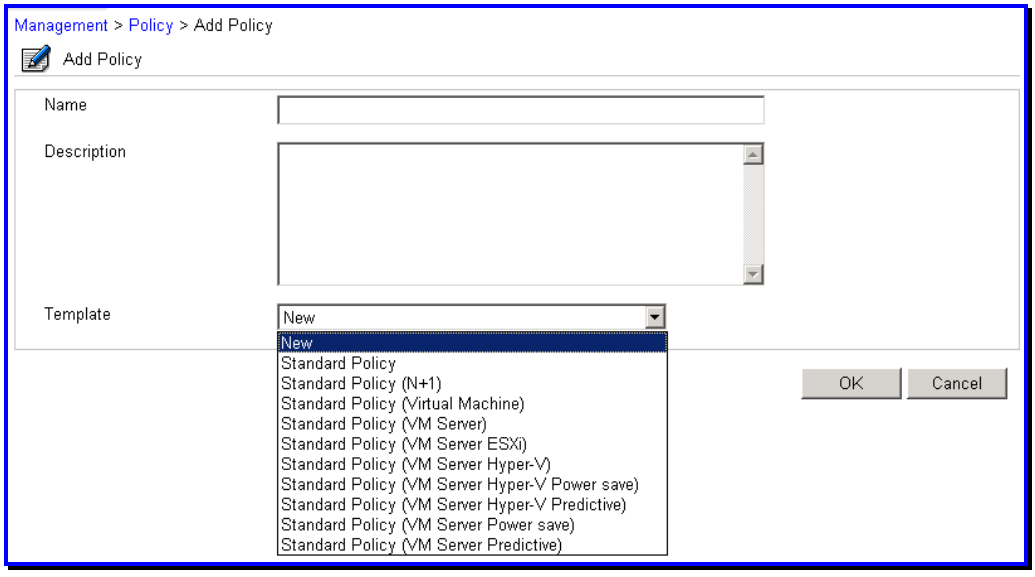

4.10.4 Copying an Existing Policy
4.10.5 Configuring Policy Property Settings
4.10.6 Configuring Event Handler Settings of a Policy Monitoring Event

4.10.3. Adding a Policy

To add a policy, perform the following procedure:

With this procedure, you can create a new policy or create a policy using Standard Policy.

1. Click **Management** on the Title bar to switch to the **Management** view.
2. Click the **Policy** in the **Management** tree.
3. Click **Add Policy** on the Configuration menu.
4. **Add Policy** appears on the Main Window.



5. Enter a policy name in the **Name** box. (Required)

6. Select **New** or one of the Standard Policies in the **Template** list. If you select a template name of a Standard Policy, you can create a new policy with the Standard Policy information.

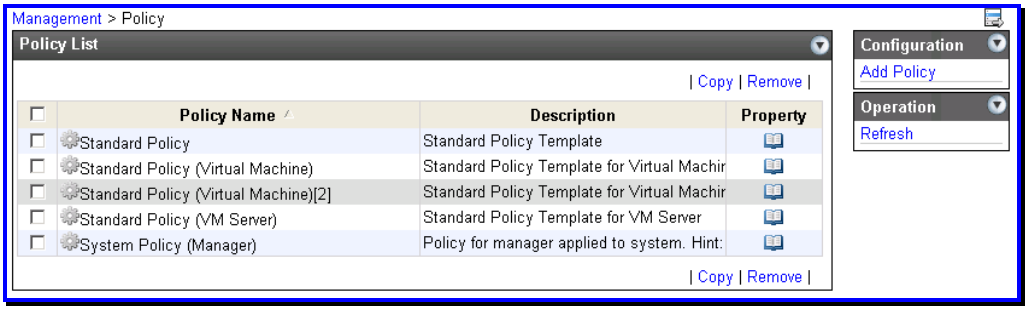
Note: The System Policy (Manager) cannot be selected here. If the System Policy (Manager) is deleted or its name is changed, it can be restored by restarting the PVMService.

7. Click **OK**.

4.10.4. Copying an Existing Policy

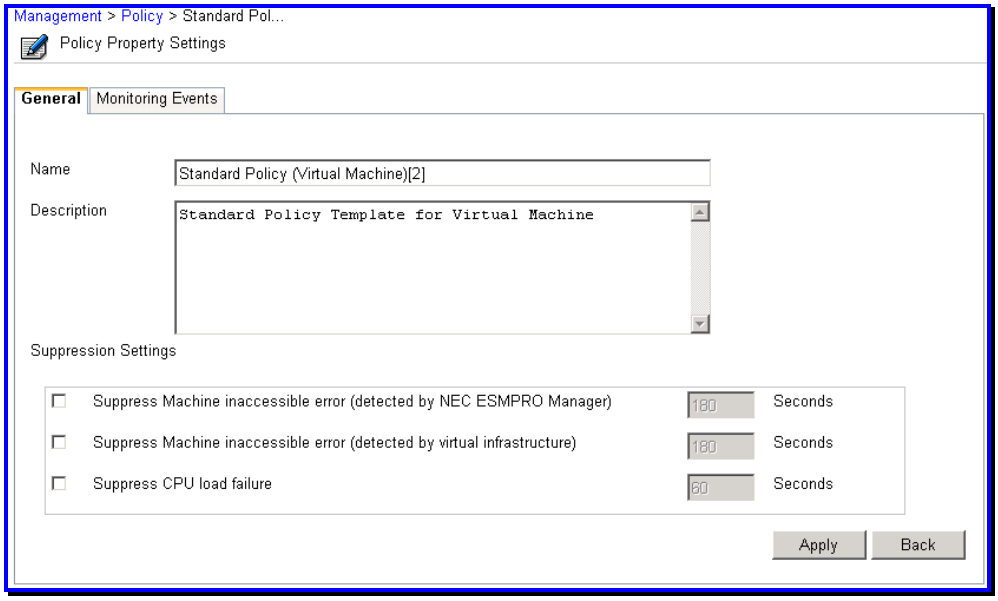
To copy an existing policy, perform the following procedure:

1. Click **Management** on the Title bar to switch to the **Management** view.
2. Click the **Policy** in the **Management** tree.
3. Select the check box of the policy to copy under **Policy List** and click **Copy** of the Action menu.
4. A confirmation message is displayed. Click **OK**.
5. The copied policy is added to the **Policy List**.



Note: A copied policy is registered with an automatically generated name with "[2]" at the end of an existing policy. If a policy with a name with "[2]" at the end already exists, a created policy name will be a name with a number that one is added to the already existing number; such as "[3]".

6. Click the **Property** of the policy. **Policy Property Settings** appears on the Main Window.



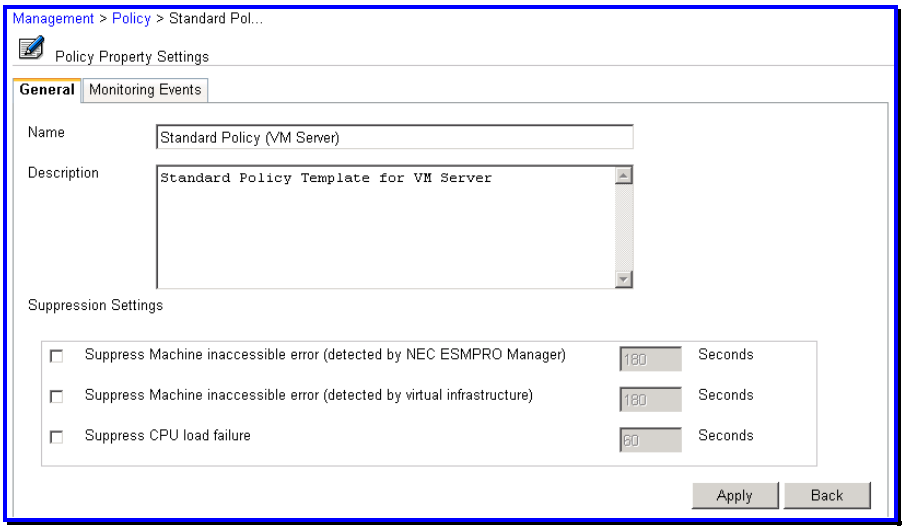
7. To change a name of the policy, enter the name in the **Name** box.
8. Click **Apply**.

4.10.5. Configuring Policy Property Settings

This subsection explains how to configure properties of the selected policy. With these settings, you can configure monitoring event of the policy and event handler settings, which are called *actions*. Perform the following procedure:

1. Display the details of a policy on the Main Window. Under **Policy List**, click the **Property** of the policy to edit.

2. **Policy Property Settings** appears on the Main Window.



3. To change the policy name, enter the policy name in the **Name** box. (Required)
4. Regarding events whose Event Category is *Machine inaccessible error* or *CPU load failure*, configure the time for SystemProvisioning to wait for a recovery event of the failures after receiving the failure event. Configuring this setting, if a series of failures and recoveries for the failures are generated in a short time, SystemProvisioning restrains to execute Policies only for failures which recovery events are not generated in the waiting time.

   To configure the waiting time, select the check box of the failure event to restrain under **Suppression Settings** and enter the time in the text box.

   Note that this control setting is reflected when you select **All events in category** under **Select Event** on the **Corresponding Event Handler Setting** window.

Reference: For the **Corresponding Event Handler Setting** window, see Subsection 4.10.6, "Configuring Event Handler Settings of a Policy Monitoring Event."

Note: Operations in this procedure is invalid for policies that *Machine inaccessible error* or *CPU load failure* is not configured as a monitoring event.

---

5. Click **Apply**.

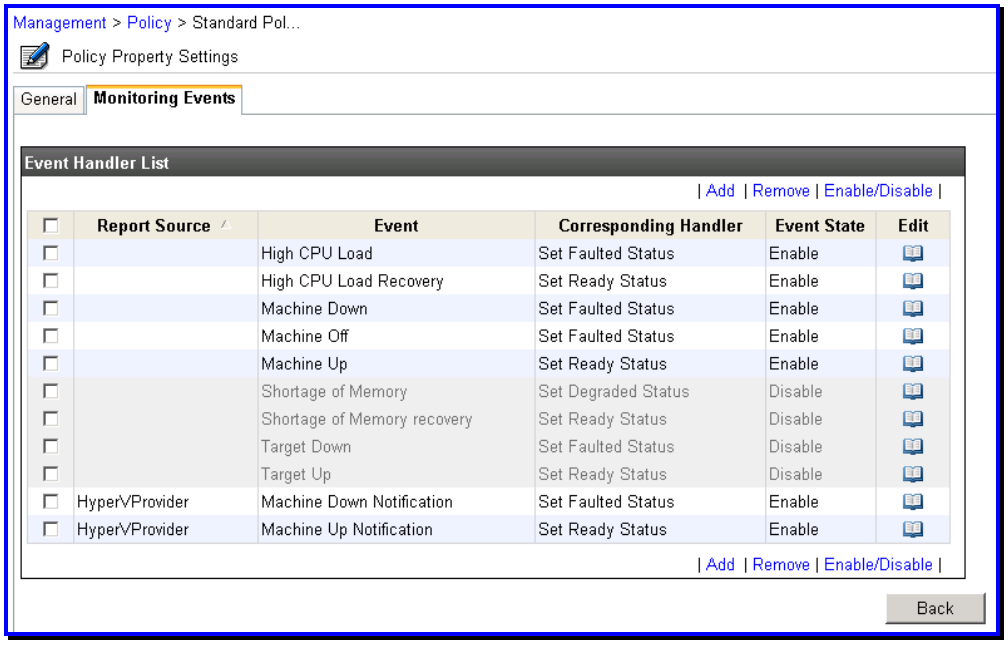
Configuring the General tab of Policy Property Settings is now complete. You can configure the corresponding event handler setting next.

Note: For the Monitoring Events tab of Policy Property Settings, see Subsection 4.10.6, "Configuring Event Handler Settings of a Policy Monitoring Event."

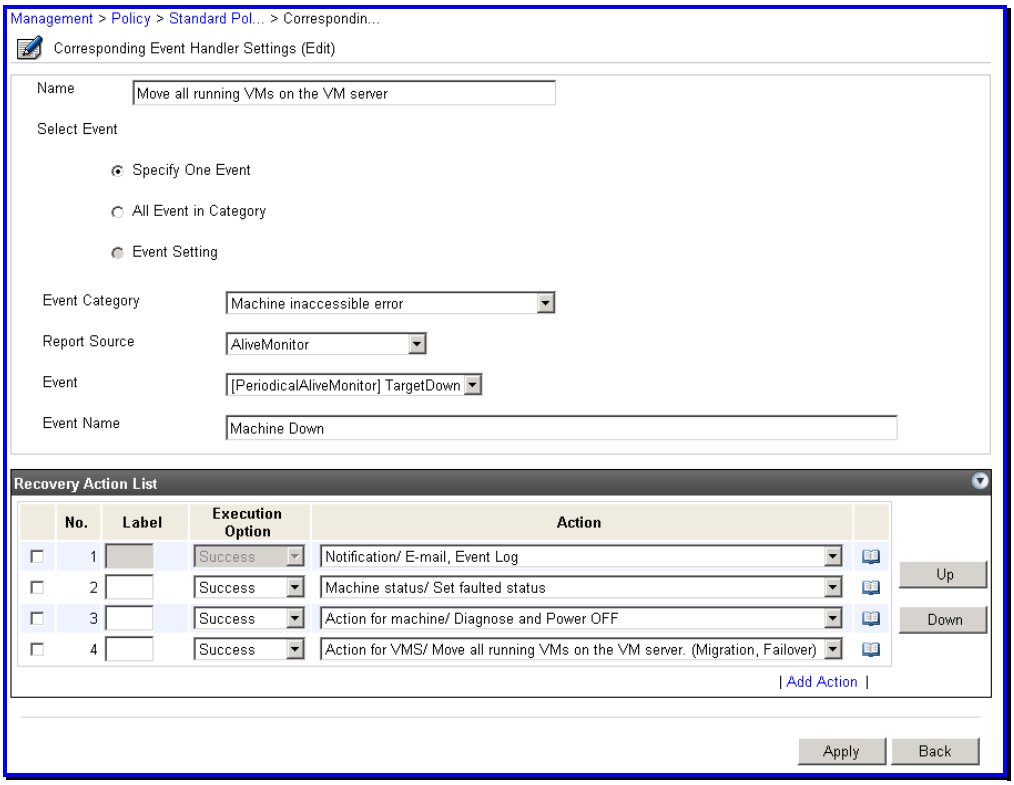
4.10.6. Configuring Event Handler Settings of a Policy Monitoring Event

This subsection explains the event handler settings of a monitoring event. You can configure recovery processes which are called *actions*, for monitoring events. Perform the following procedure:

1. Click the **Monitoring Events** tab on the **Policy Property Settings**. For the procedure, see the preceding Subsection 4.10.5, "Configuring Policy Property Settings."
2. Click **Add** of the Action menu or the **Edit** of an event to edit under **Event Handler List**.



3. **Corresponding Event Handler Settings (New)** or **Corresponding Event Handler Settings (Edit)** appears on the Main Window.



4. Enter the event handler name in the **Name** box. (Required)
5. Select **Specify One Event** or **All Event in Category** under **Select Event**.

Note: If you select the **All Event in Category**, all the report sources and events in the event category are selected. Note if the selected event category is the category that is configured in the **Suppression Settings**, including the waiting time, on the **General** tab of the **Policy Property Settings**, the **Suppression Settings** are reflected.

If you open this window after registration, **Event Setting** is selected under **Select Event** and a list of events, a list of prevent events, and waiting time are displayed in each **Group-A Event List**, **Group-B Event List**, and **Waiting Time**.

6. Select the event category in the **Event Category** list.
7. Select the report source of an event in the **Report Source** list. You do not need to select this item if you select **All Event in Category** under **Select Event**.

8. Select the event in the **Event** list. You do not need to select this item if you select **All Event in Category** under **Select Event**.

Reference: For selectable event categories or report sources, see Section 1.2, "Events SigmaSystemCenter Can Detect" in *SigmaSystemCenter Data Reference Guide*.

9. To change the event name, enter the event name in the **Event Name** box.
10. Under **Recovery Action List**, configure the actions for the event. Select actions in each **Action** list.

Reference: For selectable actions, see Section 1.7, "List of Policy Actions" in *SigmaSystemCenter Data Reference Guide*.

11. To add *actions*, click **Add Action** to add another **Action** list. The maximum number of registering *actions* is 30.
12. Specify the action number (No.) in the **Label** box.

    If the **Execution Option** list is selected together, execution patterns of the action can be specified.

    If the **Label** box is not entered, the action registered just before is the target of the execution pattern.

Reference: For details of execution patterns of actions, see Subsection 1.4.1, "Flow Control of Multiple Actions" in *SigmaSystemCenter Data Reference Guide*.

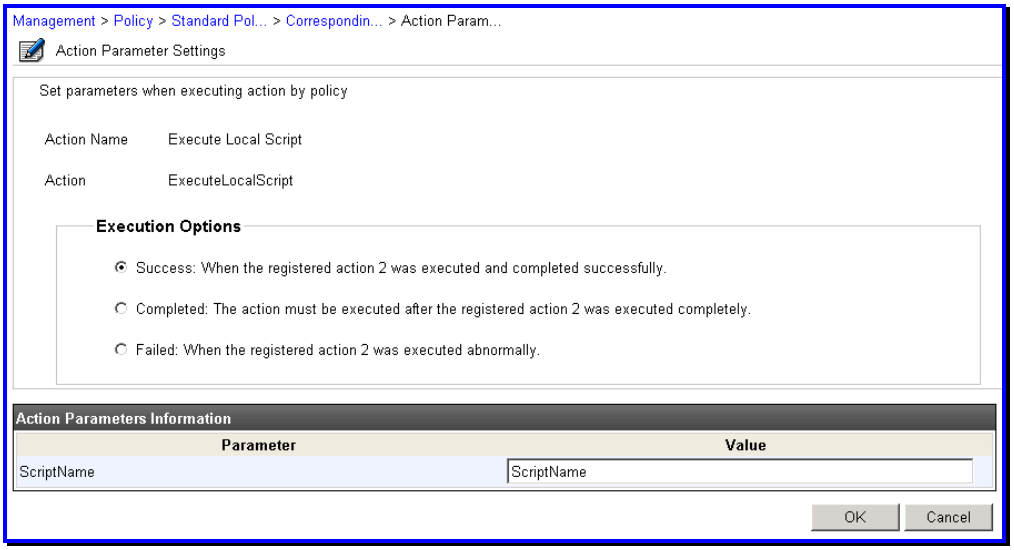
13. To change the order of the actions, select the check box of the action to move and click **Up** or **Down**.

Note:

- Recovery process is executed in the order of the **Action** list. Apply the order of the recovery process to the **Action** list.
- If a blank is set in the **Action** list, the configured action can be deleted.
- If the number of the action is specified in the **Label** box, update the specification of the **Label** properly after changing the order of the actions.

14. If the **Execute Local Script** is selected in the **Action** list, click **Edit** to display the **Action Parameter Settings** on the Main Window.

Note: Edit appears only for the **Corresponding Event Handler Settings (Edit)**.


Management > Policy > Standard Pol... > Correspondin... > Action Param...
Action Parameter Settings
Set parameters when executing action by policy
Action Name Execute Local Script
Action ExecuteLocalScript
Execution Options
Success: When the registered action 2 was executed and completed successfully.
Completed: The action must be executed after the registered action 2 was executed completely.
Failed: When the registered action 2 was executed abnormally.
Action Parameters Information
Parameter
Value
ScriptName
ScriptName
OK
Cancel

15. **Action Parameter Settings** appears. Enter the local script to execute under **Action Parameter Settings**. Confirm the name of the local script with the following procedure. If you do not execute a local script, skip to the procedure 16.

Note: "ScriptName" is configured by default.

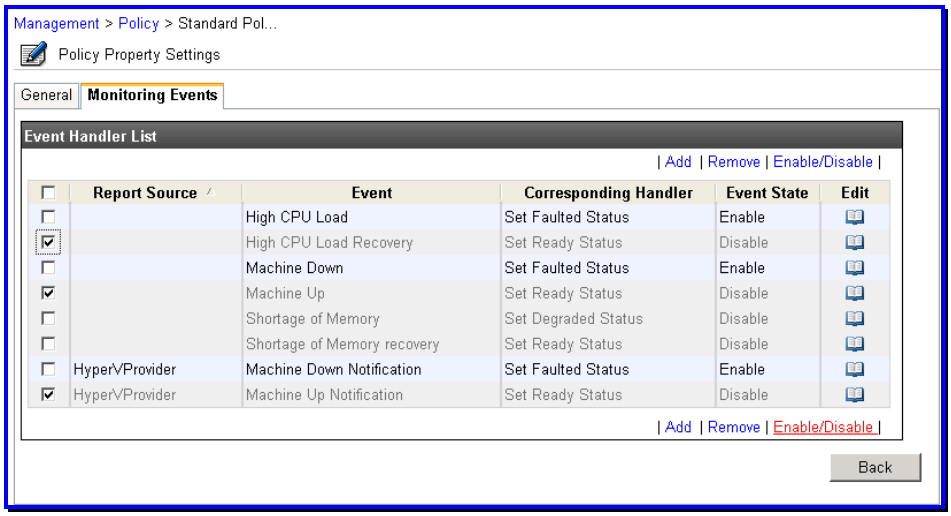
1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the **Software** in the **Resource** tree.
3. **Summary Information** appears on the Main Window.
4. Click the **Script** under **Summary Information**.
5. A list of scripts appears on the Main Window.

16. Click **OK**.

4.10.7. Enabling and Disabling Settings of a Policy Monitoring Event

You can enable and disable the settings of a policy monitoring event. You can configure to deactivate the event monitoring with the setting information by disabling the settings. To configure the settings, perform the following procedure:

1. Display the **Monitoring Event** tab of the **Policy Property Settings** on the Main Window. For the procedure, see Subsection 4.10.5, "Configuring Policy Property Settings."



2. Select policy monitoring events to enable or disable, and click **Enable / Disable** of the Action menu.

4.10.8. Importing and Exporting a Policy

You can export settings configured to a policy to a file in the xml format and import the settings to use when setting up an environment on other management server. You can execute this operation with the ssc command. See *SSC Command Reference*.

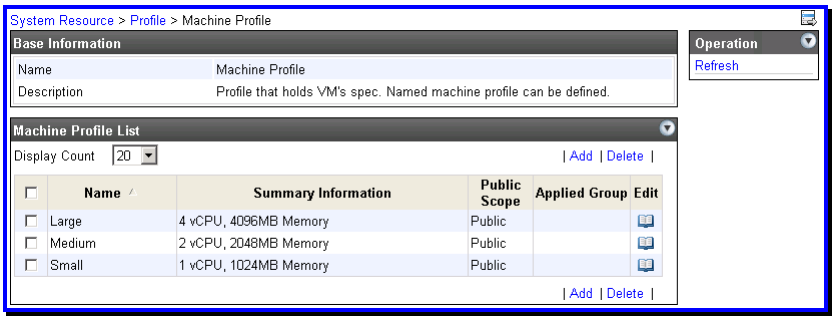
4.11. Creating a Profile

4.11.1. How to Create a Machine Profile

A machine profile is the configuration to specify the hardware specs of a virtual machine to be created newly and a virtual machine to be reconstructed. You can define the machine profile at any layer of Group / Model / Host on the Operations view. By preparing a named machine profile on the Resource view in advance, you can use it when you define a machine profile on the Operations view.

SigmaSystemCenter provides three named profiles by default; Large, Medium, and Small. When you add a new named machine profile, perform the following procedure:

1. Click **Resource** on the title bar to switch to the **Resource** view.
2. Click **Profile** in the **System Resource** tree, and then click **Machine Profile** in the **Summary Information** list.
3. **Base Information** of the machine profile appears on the main window.



4. Click **Add** on the **Action** menu on **Machine Profile List**.
5. The **Add Machine Profile** window appears. Set up each item on this window, and then click OK.

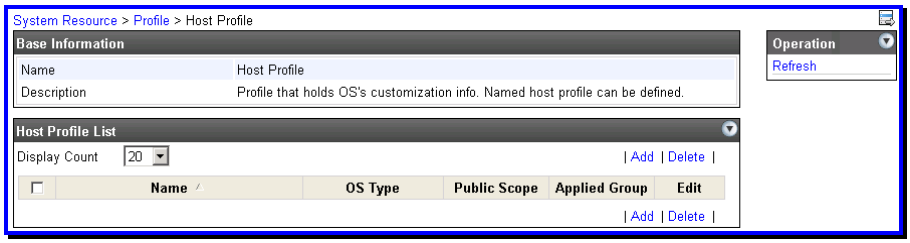
Reference: For details of machine profile, see Subsection 2.2.3, "Customization of Devices Assigned to VM (Machine Profile, Edit Virtual Machine)" through Subsection 2.2.6, "About Named Machine Profile" in *SigmaSystemCenter Overview Reference Guide*.

4.11.2. How to Create a Host Profile

A host profiles is the configuration of the machine specific information assigned to the host. You can define the host profile at any layer of Group / Host on the Operations view. By preparing a named host profile on the Resource view in advance, you can use it when you define a host profile on the Operations view.

When you add a new named host profile, perform the following procedure:

1. Click **Resource** on the title bar to switch to the **Resource** view.
2. Click **Profile** in the **System Resource** tree, and then click **Host Profile** in **Summary Information** list.
3. **Base Information** of the host profile appears on the main window.



4. Click **Add** on the **Action** menu on **Host Profile List**.
5. The **Add Host Profile** window appears. Set up each item on this window, and then click **OK**.

Reference: For details of host profile, see Subsection 1.3.2, "Applicable Machine-Specific Information in Image Deployment" and Subsection 1.3.3, "Host Profile" in *SigmaSystemCenter Overview Reference Guide*.

4.11.3. How to Create a Monitoring Profile

Monitoring Profile is a set of performance indicators of System Monitor - Performance Monitoring Services' data collection and threshold monitor settings. These can be specified at each layer of the Group / Model on the Operations view. According to which profile you select, you can use the performance indicators and collection intervals for data collection of System Monitor - Performance Monitoring Services and threshold monitor settings, switching them each other.

SigmaSystemCenter provides the following four standard monitoring profiles by default. For details about each profile, see Appendix A, "Monitoring Profile".

- Standard Monitoring Profile
- VM Standard Monitoring Profile
- VM Monitoring Profile
- Physical Machine Monitoring Profile

By adding or editing a monitoring profile, you can add a performance indicator to be collected or you can set up for threshold monitoring. To do so, perform the following procedure:

Reference:

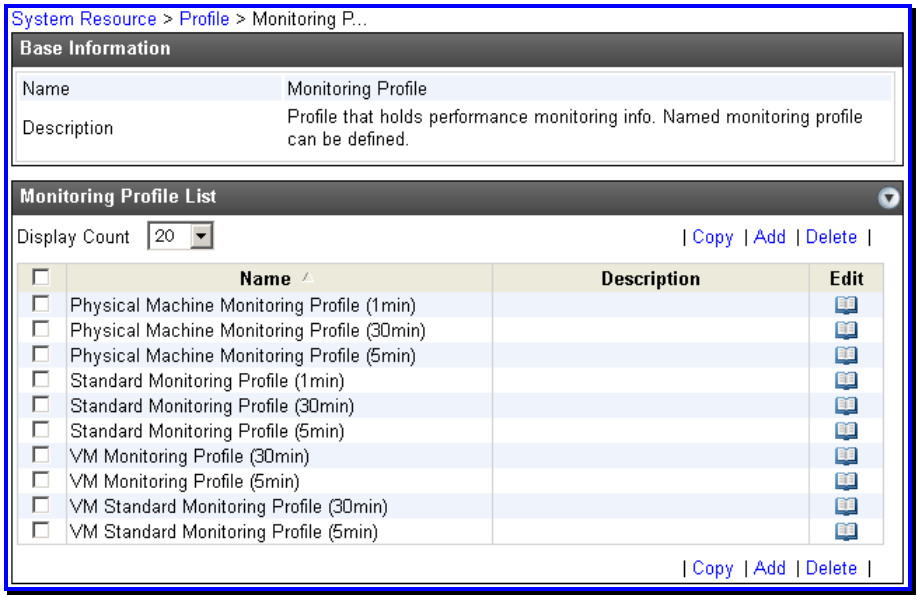
・For details of performance indicators, see Section 1.3, "Collected Performance Data" in *System Monitor - Performance Monitoring Services User's Guide*.

・For details of threshold monitoring, see Section 1.9, "Threshold Monitoring and the Notification Function" in *System Monitor - Performance Monitoring Services User's Guide*.

◆ To add a performance indicator to be collected

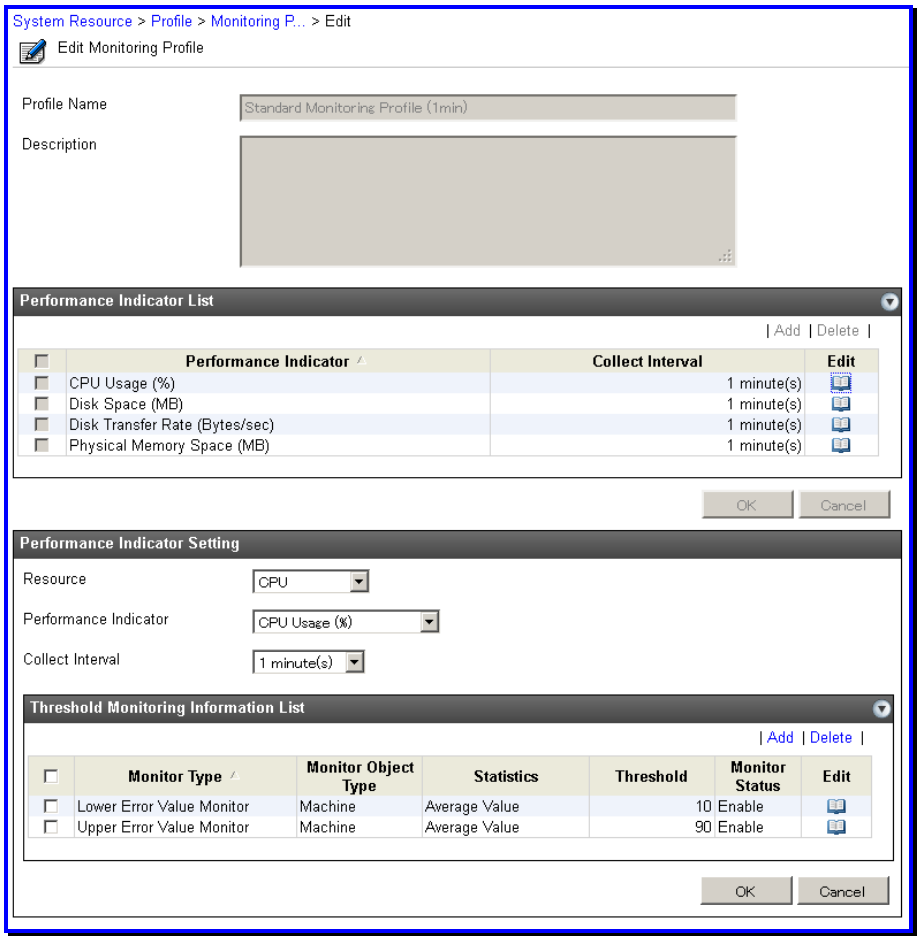
The following demonstrates the procedure to create a monitoring profile by copying the existing monitoring profile.

1. Click **Resource** on the title bar to switch to the **Resource** view.
2. Click **Profile** in the **System Resource** tree, and then click **Monitoring Profile** in the **Summary Information** list.
3. **Base Information** of the monitoring profile appears on the main window.



4. Select the monitoring profile to be copied on **Monitoring Profile List**, and then click **Copy** on the **Action** menu.
5. The copied monitoring profile is added to **Monitoring Profile List**.
6. Click the **Edit** icon of the added monitoring profile.
7. The **Edit Monitoring Profile** window appears.
8. On the **Action** menu on **Performance Indicator List**, click **Add**.

9. The **Performance Indicator Setting** window appears.



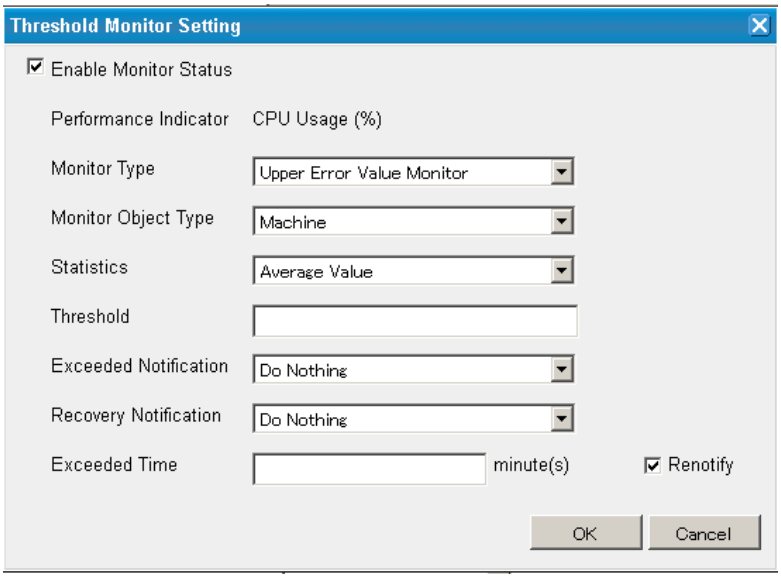
10. Select resource type from the **Resource** box, performance indicator from the **Performance Indicator** box, and collect interval from the **Collect Interval** box. And then click **OK**.

◆ To set up threshold monitoring

The following demonstrates the procedure to add a threshold monitoring setting to the existing monitoring profile.

1. Perform the procedure 1 through 3 in "◆ To add a performance indicator to be collected."
2. Click the **Edit** icon of the monitoring profile to which you want to add a threshold monitoring setting on **Monitoring Profile List**.
3. The **Edit Monitoring Profile** window appears.
4. Click the **Edit** icon of the monitoring profile to which you want to add a threshold monitoring setting on **Performance Indicator List**.
5. The **Performance Indicator Setting** window appears.

6. On the **Action** menu on **Threshold Monitoring Information List**, click **Add**.
7. The **Threshold Monitor Setting** dialog box appears.



8. Perform each of settings on this dialog box, and click **OK**.
9. The threshold monitoring setting is added to **Threshold Monitoring Information List**. Click **OK**.

5. Creating an Operation Group

This chapter explains the operations to create an operation group in SigmaSystemCenter.

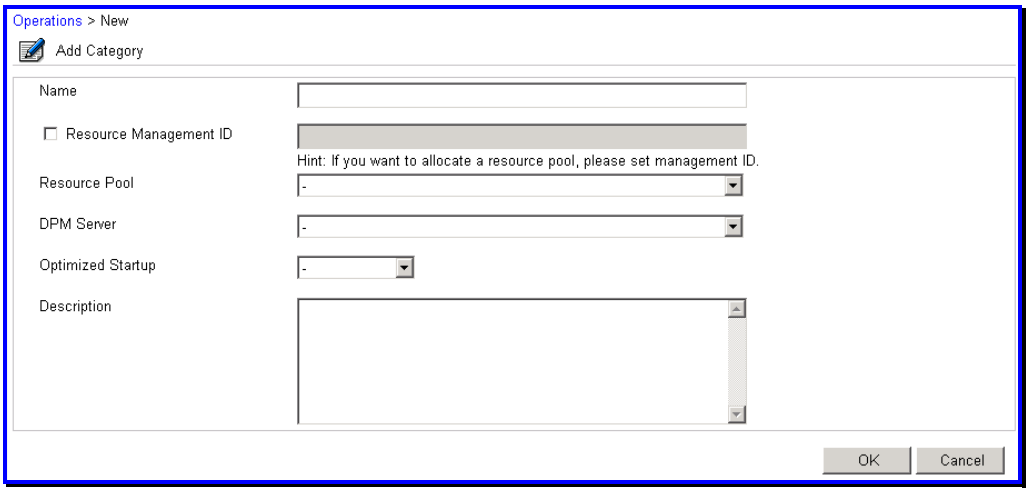
This chapter contains the following sections:

- 5.1 Adding a Category 196
- 5.2 Configuring the Access Authority and Operation Authority 197
- 5.3 Adding an Operation Group 210
- 5.4 Configuring Group Properties 211
- 5.5 Configuring Model Properties (For a Physical Machine) 245
- 5.6 Configuring Model Properties (For a Virtual Machine) 256
- 5.7 Configuring Model Properties (For a Virtual Machine Server) 263
- 5.8 Configuring the Host Setting 269
- 5.9 Configuring a Resource Pool 283

5.1. Adding a Category

To add a category, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the **Operations** or the icon of the category to which you want to add a category in the **Operations** tree.
3. Click **Add Category** on the Configuration menu.
4. **Add Category** appears on the Main Window.



5. Enter a category name in the **Name** box. (Required)
6. If you plan to manage resources, select the **Resource Management ID** check box, and enter the ID for managing resources in the **Resource Management ID** box.
7. If you don't plan to manage resources, select a resource pool in the **Resource Pool** list.
8. To register a virtual machine to be activated to DPM, select the **DPM Server** in the **DPM Server** list.

Note: This setting is necessary for executing Create and Assign Machine or Allocate Machine to virtual machines of XenServer, Standalone ESXi, Hyper-V and KVM. This setting also can be configured on a Group or a Model.

9. To enable the Optimized Startup Function, select the **Enable** in the **Optimized Startup** list.
10. Click **OK**.
11. The category is added to the **Operations** tree, and the category appears under **Category and Group List**.

5.2. Configuring the Access Authority and Operation Authority

You can configure the access authority and operation authority to a target resource by configuring a role and allocating the role to a user account.

Resources to which the access authority and operation authority can be configured by setting roles are as follows:

- Category / Group in the Operations view
- Group / Rack / Smart Group in the Resource view
- Datacenter / Virtual Machine Server in the Virtual view

To enable a role setting to a machine, configure a role to the above resources, and add the machine to the resources.

The access authority and operation authority also can be configured to the system other than the above resources.

Note:

▪ Software and storage are not the target resources of configuring the access authority or the operation authority.

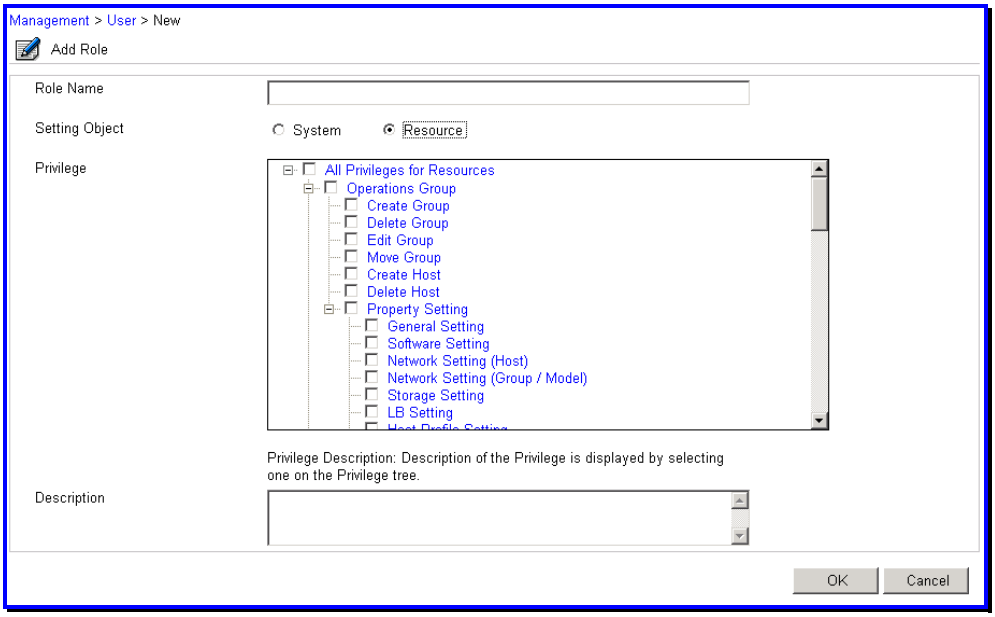
▪ For the kinds of operations on which limits can be set by configuring a role, see Section 1.1, "User and Role" in *SigmaSystemCenter Overview Reference Guide*.

5.2.1. Adding a Role

To add a role, perform the following procedure.

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Under **Role List**, click **Add**.

5. **Add Role** appears on the Main Window.



6. Enter the role name in the **Role Name** box.
7. Select either **System** or **Resource** in the **Setting Object**.

   - System

     Defines the range of available operations for each view display, user management, role management, authority setting, and policy management.

     Note: If the **System** is selected in the **Setting Object** list, ensure that one or more view authority is also selected.

   - Resource

     Defines the range of the authority of the operations in the Operations view and the operations to hosts, physical machines, virtual machines, and virtual machine servers.

8. Select the check box of the privilege to configure in the **Privilege** tree.

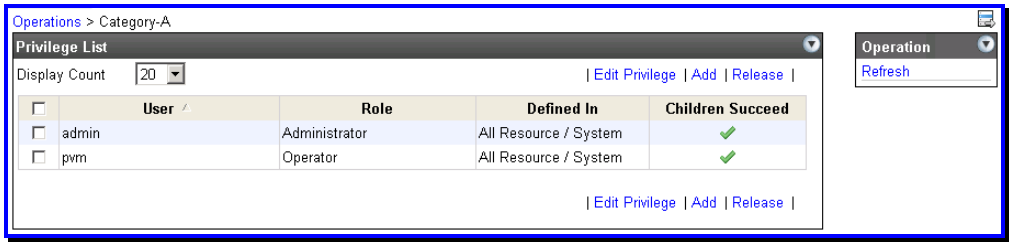
   Note: If an authority name in the **Privilege** tree is clicked, the summary of the selected authority appears under **Privilege Description**.

9. Click **OK**.

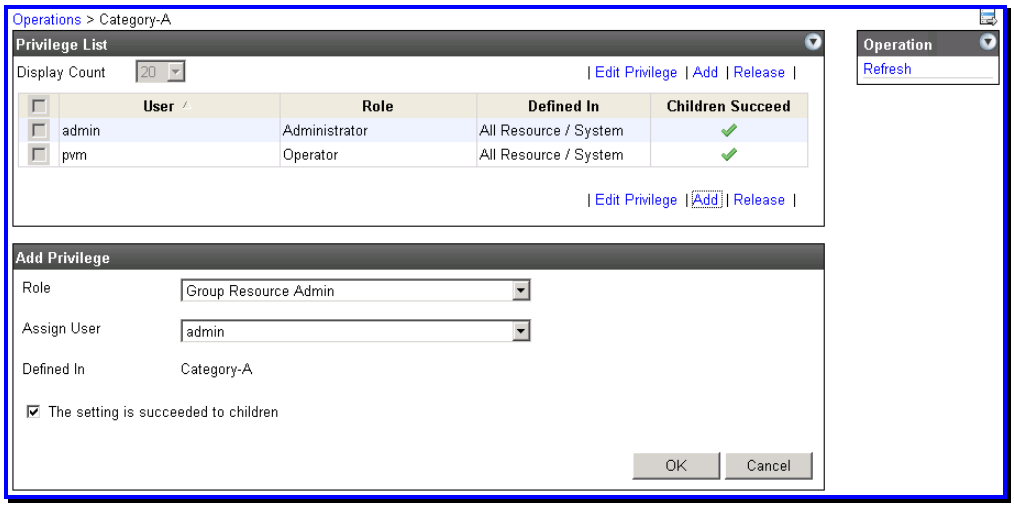
5.2.2. Configuring the Authority to a Category

To specify a target category of the access and operation authority with a role setting, perform the following procedure:

1. Click **Operations** on the Title Bar to switch to the **Operations** view.
2. Click the icon of the target category to configure the access and operation authority with a role in the **Operations** tree.
3. Details of the category appear on the Main Window.
4. Click **Set Privilege** on the Configuration menu.
5. **Privilege List** appears on the Main Window.



6. Click **Add** of the **Action** menu.
7. **Add Privilege** appears under **Privilege List**.



8. Select the role to assign in the **Role** list.
9. Select the user to assign in the **Assign User** list.

10. To succeed the configuration to the child resource, select the **The setting is succeeded to children** check box.

Note: If the **The setting is succeeded to children** check box is selected, the configuration of a role is succeed to the categories, groups, and machines activated at the groups which exist under the target category of the configuration of the role.

11. Click **OK**.

5.2.3. Configuring the Authority to an Operation Group

To specify a target operation group of the access and operation authority with a role setting, perform the following procedure:

1. Click **Operations** on the Title Bar to switch to the **Operations** view.
2. Click the icon of the target operation group to configure the access and operation authority with a role in the **Operations** tree.
3. Details of the operation group appear on the Main Window.
4. Click **Set Privilege** on the Configuration menu.
5. **Privilege List** appears on the Main Window.
6. Click the **Add** of the **Action** menu.
7. **Add Privilege** appears under **Privilege List**.
8. Select the role to assign in the **Role** list.
9. Select the user to assign in the **Assign User** list.
10. To succeed the configuration to the child resource, select the **The setting is succeeded to children** check box.

Note: If the **The setting is succeeded to children** check box is selected, the configuration of the role is succeeded to the machines activated at the target operation group.

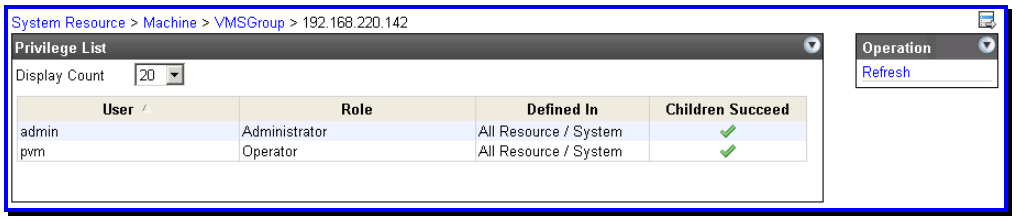
11. Click **OK**.

5.2.4. Configuring the Authority to a Machine

To configure the authority to a machine, set the role in which the **The setting is succeeded to children** check box is selected to the resource to which the machine belongs. Then, the role set on the resource is succeeded to the machine.

To check the authority configuration information of the role which is succeeded to the target machine, perform the following procedure:

1. Click **Resource** on the Title Bar to switch to the **Resource** view, or click **Virtual** on the Title Bar to switch to the **Virtual** view.
2. Click the icon of the target machine to check the configuration of the access and operation authority with a role in the **Resource** tree or the **Virtual** tree.
3. Details of the machine appear on the Main Window.
4. Click **Set Privilege** on the Configuration menu.
5. **Privilege List** appears on the Main Window.



Note: Add, **Edit Privilege**, or **Release** does not appear on the Action menu because a role cannot be configured directly to a machine. To enable a role to a machine, configure the role for which the **The setting is succeeded to children** check box is selected to the resource to which the target machine belongs.

5.2.5. Configuring the Authority to a Datacenter

To specify a target datacenter of the access and operation authority with a role setting, perform the following procedure:

1. Click **Virtual** on the Title Bar to switch to the **Virtual** view.
2. Click the icon of the target datacenter to configure the access and operation authority with a role in the **Virtual** tree.
3. Details of the datacenter appear on the Main Window.
4. Click **Set Privilege** on the Configuration menu.
5. **Privilege List** appears on the Main Window.
6. Click the **Add** of the **Action** menu.
7. **Add Privilege** appears under **Privilege List**.
8. Select the role to assign in the **Role** list.
9. Select the user to assign in the **Assign User** list.
10. To succeed the configuration to the child resource, select the **The setting is succeeded to children** check box.

Note: If the **The setting is succeeded to children** check box is selected, the configuration of the role is succeeded to the virtual machine servers and virtual machines activated on the virtual machine servers.

11. Click **OK**.

5.2.6. Configuring the Authority to a Virtual Machine Server

To specify a target virtual machine server of the access and operation authority with a role setting, perform the following procedure:

1. Click **Virtual** on the Title Bar to switch to the **Virtual** view.
2. Click the icon of the target virtual machine group to configure the access and operation authority with a role in the **Virtual** tree.
3. Details of the virtual machine server appear on the Main Window.
4. Click **Set Privilege** on the Configuration menu.
5. **Privilege List** appears on the Main Window.
6. Click the **Add** of the **Action** menu.
7. **Add Privilege** appears under **Privilege List**.
8. Select the role to assign in the **Role** list.
9. Select the user to assign in the **Assign User** list.
10. To succeed the configuration to the child resource, select the **The setting is succeeded to children** check box.

Note: If the **The setting is succeeded to children** check box is selected, the configuration of the role is succeeded to the virtual machines activated on the target virtual machine server.

11. Click **OK**.

5.2.7. Configuring the Authority to a Resource Group

To specify a target resource group, rack, or smart group of the access and operation authority with a role setting, perform the following procedure:

1. Click **Resource** on the Title Bar to switch to the **Resource** view.
2. Click the icon of the target resource group, rack, or smart group to configure the access and operation authority with a role in the **Resource** tree.
3. Details of the resource group, rack, or smart group appear on the Main Window.
4. Click **Set Privilege** on the Configuration menu.
5. **Privilege List** appears on the Main Window.
6. Click the **Add** of the **Action** menu.
7. **Add Privilege** appears under **Privilege List**.
8. Select the role to assign in the **Role** list.

9. Select the user to assign in the **Assign User** list.
10. To succeed the configuration to the child resource, select the **The setting is succeeded to children** check box.

Note:

▪ If the **The setting is succeeded to children** check box is selected, the configuration of the resource group, rack, or smart group is succeeded to the machines belonging to the target resource group, rack, or smart group.

▪ For a smart group, the setting value of the **The setting is succeeded to children** check box is invalid. The role setting configured to a smart group cannot be succeeded to the machines searched by the smart group.

11. Click **OK**.

5.2.8. Releasing the Allocation of a Role

To release the allocation of a role for a category, operation group, datacenter, virtual machine server, or resource group, perform the following procedure:

Note:

▪ The role of which the all resources or systems are configured in the Defined In cannot be released.

▪ Only a user with the system administrator role can release the role of which the all resources are configured in the Defined In.

▪ If the target resource takes over the role configuration of the other resource, the other resource's name is displayed in the Defined In. If the allocation of the role is released, the role setting configured in the Defined In is released.

1. Switch to the Main Window of the target resource.
2. Click **Set Privilege** on the Configuration menu.
3. **Privilege List** appears on the Main Window.
4. Clear the check box of the user to release the allocation.
5. Click the **Release** of the **Action** menu.
6. The confirmation message appears. Click **OK**.

5.2.9. Changing the Allocation of a Role

To change the allocation of a role for a category, operation group, datacenter, virtual machine server, or resource group, perform the following procedure:

Note:

▪ The role of which the all resources or systems are configured in the Defined In cannot be changed.

▪ Only a user with the system administrator role can change the role of which the all resources are configured in the Defined In.

▪ If the target resource takes over the role configuration of the other resources, the other resource's name is displayed in the Defined In. If the allocation of a role is changed, the role setting configured in the Defined In is changed.

1. Switch to the Main Window of the target resource.
2. Click **Set Privilege** on the Configuration menu.
3. **Privilege List** appears on the Main Window.
4. Select the check box of the user to change the allocation.
5. Click the **Edit Privilege** of the Action menu.
6. **Edit Privilege** appears on the Main Window.

7. Select a new role to allocate from the **Role** list.
8. To succeed the configuration to the child resource, select the **The setting is succeeded to children** check box.
9. Click **OK**.

5.2.10. Configuring a Role for the System

To configure a role that can enable the authority of the display view, user management, role management, and authority setting, perform the following procedure:

Note:

▪ Only a user with the system administrator role can allocate a role for the system to a user.

▪ A user must have a role for the system (, or a role for all resources and system).

◆ Adding a role for the system

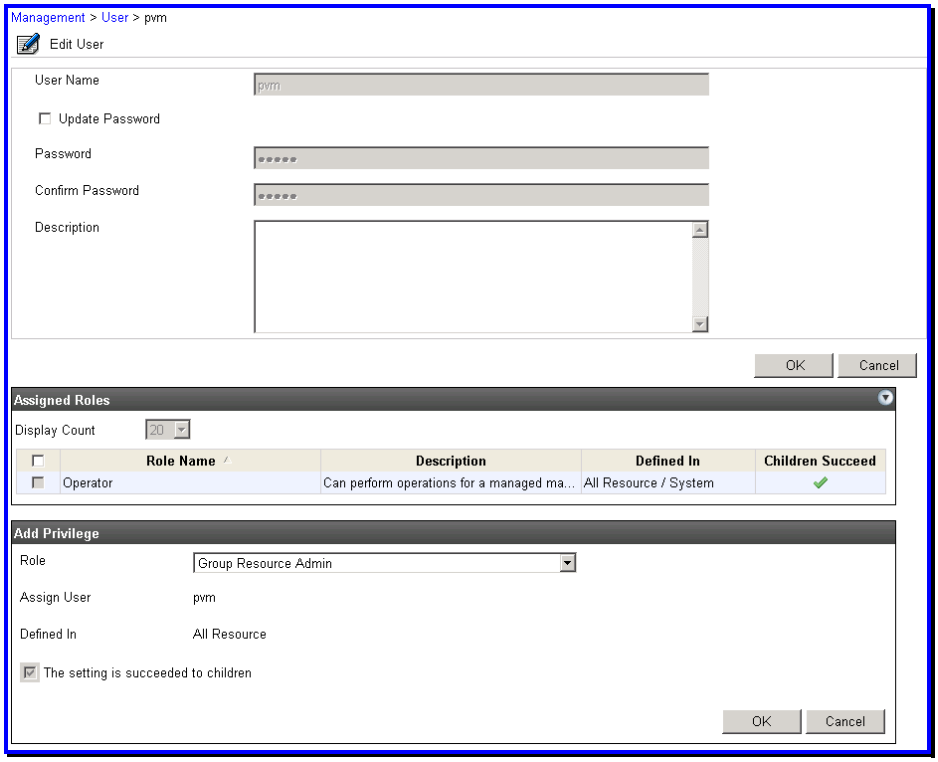
There are two methods to add a role for the system: one is selecting the role as the initial role while adding a user, the other is adding the role from the **Edit User** window on the **Management** view.

The procedure of the latter method is as follows:

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Click the **Edit** of the user to allocate the role under **User List**.
5. The **Edit User** appears on the Main Window.
6. Click the **Add** of the Action menu under **Assigned Roles**.

Note: The **Add** does not appear on the Action menu for a user without the system administrator role.

7. **Add Privilege** appears under **Assigned Roles**.



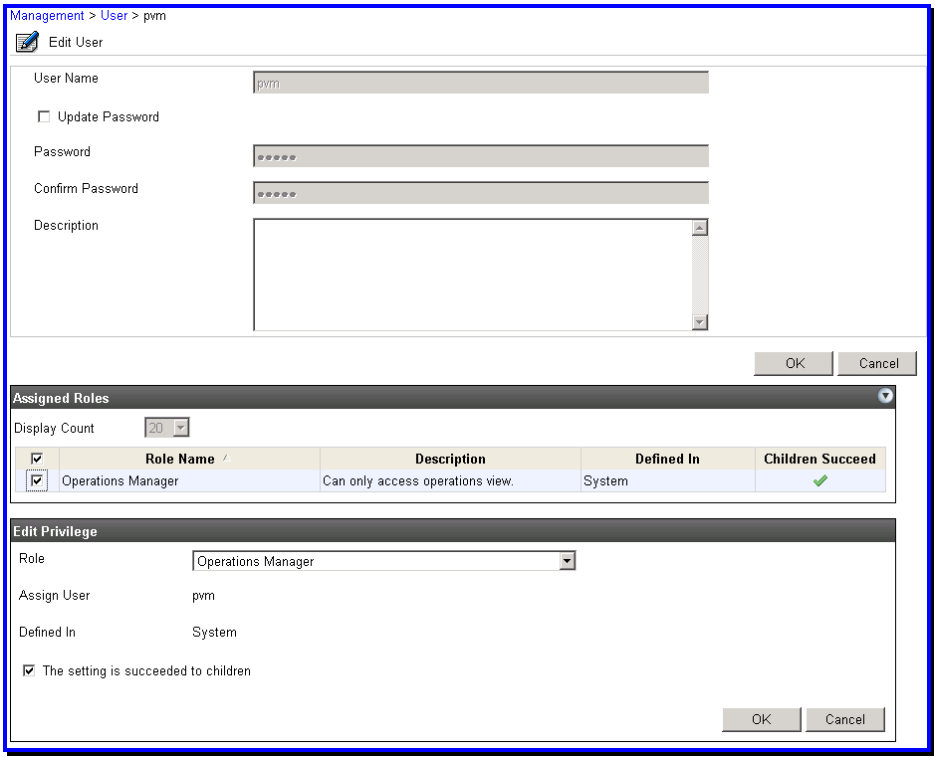
8. Select the role to allocate the user in the **Role** list.
9. Configure the role of which the **System** is configured in the **Defined In** to the system.
10. Click **OK**.
11. The role to allocate the user is added under **Assigned Roles**.

◆ Changing a role for the system

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Click the **Edit** of the user to allocate the role under **User List**.
5. The **Edit User** appears on the Main Window.
6. Select the check box of the role of which the **Defined In** is **System** under **Assigned Roles**, and click the **Edit Privilege** of the Action menu.

Note: The **Edit Privilege** does not appear on the Action menu for a user without the system administrator role.

7. **Edit Privilege** appears under **Assigned Roles**.



8. Click **OK**.
9. The changed role appears under **Assigned Roles**.

Note: When changing the role for the system, the **The setting is succeeded to children** check box is always selected.

◆ Releasing a role for the system

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Click the **Edit** of the user to allocate the role under **User List**.
5. The **Edit User** appears on the Main Window.
6. Select the check box of the role to release under **Assigned Roles**, and click the **Release** of the Action menu.
7. The confirmation message appears. Click **OK**.

5.2.11. Configuring a Role for All Resources

To configure the same role to the resources to which a role can be configured, such as a category, operation group, resource group, datacenter, and virtual machine server, and a machine at the same time, perform the following procedure:

Note:

▪ *All Resources* refers to the resources to which a role can be configured, such as a category, operation group, resource group, datacenter, and virtual machine server, and a machine.

▪ Only a user with the system administrator role can allocate a role for all resources.

◆ Adding a role for all resources

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Click the **Edit** of the user to allocate the role under **User List**.
5. The **Edit User** appears on the Main Window.
6. Click the **Add** of the Action menu under **Assigned Roles**.

Note: The **Add** does not appear on the Action menu for a user without the system administrator role.

7. **Add Privilege** appears under **Assigned Roles**.
8. Select the role to allocate the user in the **Role** list.
9. Configure the role of which the **System** is configured in the **Defined In** to the system.
10. Click **OK**.
11. The role to allocate the user is added under **Assigned Roles**.

◆ Changing a role for all resources

1. Click **Management** on the Title Bar to switch to the **Management** view.
2. Click the **User** in the **Management** tree.
3. Details of the user appear on the Main Window.
4. Click the **Edit** of the user to allocate the role under **User List**.
5. The **Edit User** appears on the Main Window.

6. Select the check box of the role of which the **Defined In** is **All Resources** under **Assigned Roles**, and click the **Edit Privilege** of the Action menu.

Note: The **Edit Privilege** does not appear on the Action menu for a user without the system administrator role.

7. **Edit Privilege** appears under **Assigned Roles**.
8. Click **OK**.
9. The changed role appears under **Assigned Roles**.

Note: When changing the role for all resources, the **The setting is succeeded to children** check box is always selected.

- Releasing a role for all resources
  1. Click **Management** on the Title Bar to switch to the **Management** view.
  2. Click the **User** in the **Management** tree.
  3. Details of the user appear on the Main Window.
  4. Click the **Edit** of the user to allocate the role under **User List**.
  5. The **Edit User** appears on the Main Window.
  6. Select the check box of the role to release under **Assigned Roles**, and click the **Release** of the Action menu.
  7. The confirmation message appears. Click **OK**.

5.3. Adding an Operation Group

In SigmaSystemCenter, you can operate a machine with the same procedure regardless of the machine types, a physical machine or virtual machine; however, you need to prepare different operation groups by the machine type and OS type. An operation group can manage only one type of machine.

The machine types that can be managed in SigmaSystemCenter are:

- Physical machine except a virtual machine server
- Virtual machine servers
- Virtual machines

To add an operation group, perform the following procedure.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the **Operation** or the icon of the category or group to which you want to create a group in the **Operations** tree.
3. Click **Add Group** on the Configuration menu.
4. **Add Group** appears on the Main Window.

5. Enter an operation group name in the **Name** box. (Required)
6. Select the type of active OS of the machine to be registered to the group in the **OS Type** list.

Note: Select the followings as an OS type if the managed machine is a virtual machine server.
Windows Server: Hyper-V
Linux: VMware ESX Server, Xen, KVM

7. Click **OK**.

5.4. Configuring Group Properties

This section explains how to configure properties of an operation group. Follow the procedure in this section.

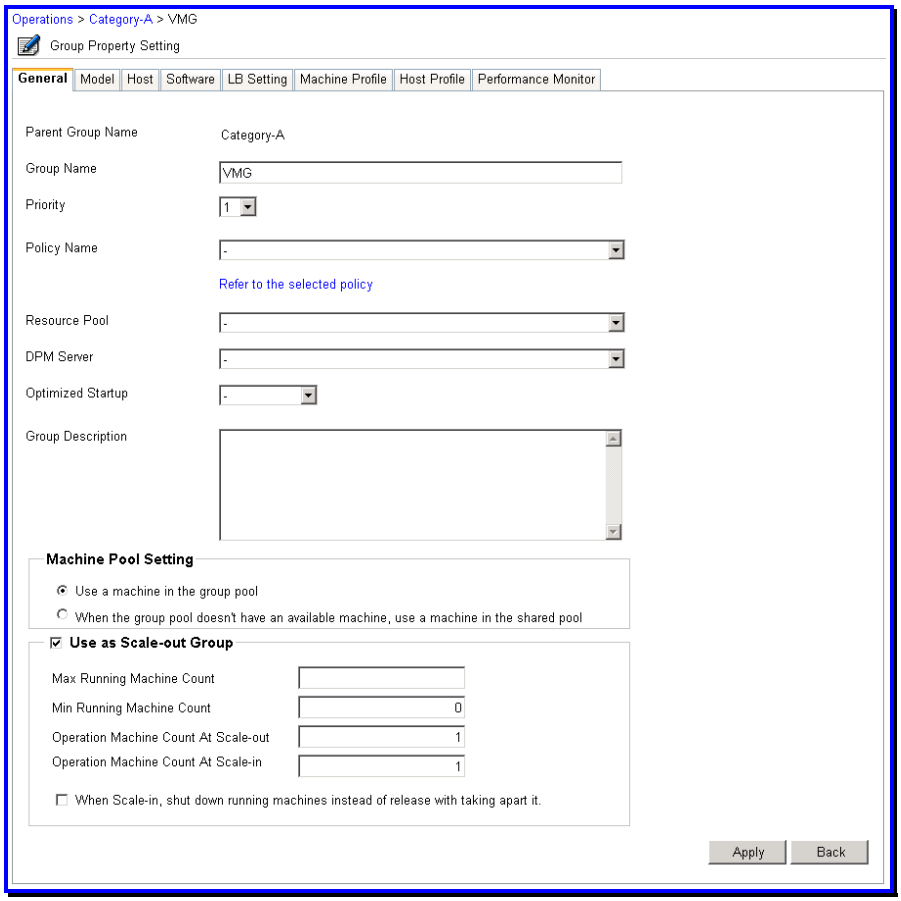
1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to configure in the **Operations** tree.
3. Click **Property** on the Configuration menu.
4. **Group Property Setting** appears on the Main Window.

Configure settings on each tab with the procedure in the following subsections.

5.4.1. Configuring Settings on the General Tab

To configure settings on the General tab of the Group Property Setting, perform the following procedure:

1. Display the **Group Property Setting** window, and click the **General** tab.



2. To change the operation group name, enter the operation group name in the **Group Name** box. (Required)
3. To change the priority of the operation group, select the priority in the **Priority** list.

Note: SystemProvisioning selects an operation group in ascending order of the **Priority** value.

4. To configure a policy to the operation group, select the policy name in the **Policy Name** list.

Note: Prepare the policy in advance before configuring the policy to the operation group. For details of policies, see Section 4.10, "Creating a Policy."

5. To relate the group to a resource pool, select a resource pool in the **Resource Pool** list. If you specify a resource pool here, SystemProvisioning selects a target virtual machine server to create a virtual machine from the virtual machine servers under the specified resource pool when creating a virtual machine.

Note:

▪ This item appears only when the **VM** is selected for the **Model Type**.

▪ If any resource pool is not specified here, SystemProvisioning selects a target virtual machine server from the virtual machine servers that are configured on the templates specified on the **Software** tab.

6. To register a virtual machine to be activated to DPM, select the **DPM Server** in the **DPM Server** list.

Note:

▪ This item appears only when the **VM** is selected for the **Model Type**.

▪ This setting is necessary for executing Create and Assign Machine or Allocate Machine to virtual machines of XenServer, Standalone ESXi, Hyper-V and KVM. This setting also can be configured on a Category or a Model.

7. To enable the Optimized Startup Function, select the **Enable** in the **Optimized Startup** list. If you select this check box here, SystemProvisioning selects a virtual machine server as a new host in situations where virtual machines on the virtual machine server now used as the host cannot be started. If you specify a resource pool in the **Resource Pool** list, SystemProvisioning selects a target virtual machine server to start a virtual machine from the virtual machine servers under the specified resource pool.

Note:

▪ This item appears only when the **VM** is selected for the **Model Type**.

▪ If any resource pool is not specified, SystemProvisioning selects a target virtual machine server from the virtual machine servers under the datacenter to which the virtual machines belongs.

8. Select the use of the pool machine under **Machine Pool Setting**.
9. To use Scale Out or Scale In, select the **Use as Scale-out Group** check box.
    1. To set the max number of the machines running at the operation group, enter the max number in the **Max Running Machine Count** box.
    2. To set the minimum number of the machines running at the operation group, enter the minimum number in the **Min Running Machine Count** box.
    3. To set the number of the machines to be assigned at one time in one Scale Out operation, enter the number in the **Operation Machine Count At Scale-out** box.
    4. To set the number of the machines to be released at one time in one Scale In operation, enter the number in the **Operation Machine Count At Scale-in** box.
    5. To shut down the machine without releasing during Scale In operation, select the **When Scale-in, shut down running machines instead of release with taking apart it** check box.
10. Click **Apply**.

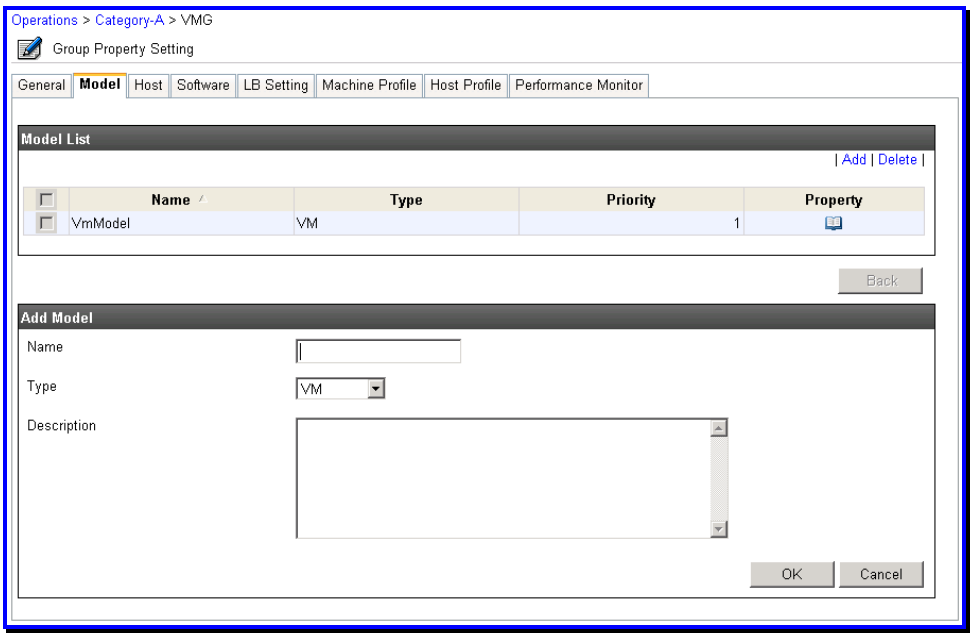
5.4.2. Configuring Settings on the Model Tab

On the Model tab, configure the information that depends on the machine types. Multiple models can be added to an operation group. To manage machines with different machine specs in one operation group, prepare a model for each machine spec.

To configure settings on the Model tab of the Group Property Setting, perform the following procedure:

1. Display the **Group Property Setting** window, and select the **Model** tab.
2. To add a model to **Model List**, click **Add** of the Action menu under **Model List**.

3. **Add Model** is displayed below the **Model List**.



4. Enter the model name in the **Name** box. (Required)
5. Select the type of the model in the **Type** list.

   If a type of machines is a physical machine except a virtual machine server, select **Physical**, if it is a virtual machine, select **VM**, and if it is a virtual machine server, select **VM Server**.

Note: You can add one type of the models, Physical, VM, or VM Server to an operation group. You may not add models of different types of machines.

6. Click **OK**. The model is added to the **Model List**.
7. Click **Back** to display the details of the group on the Main Window.

Configure Model Property Setting next.

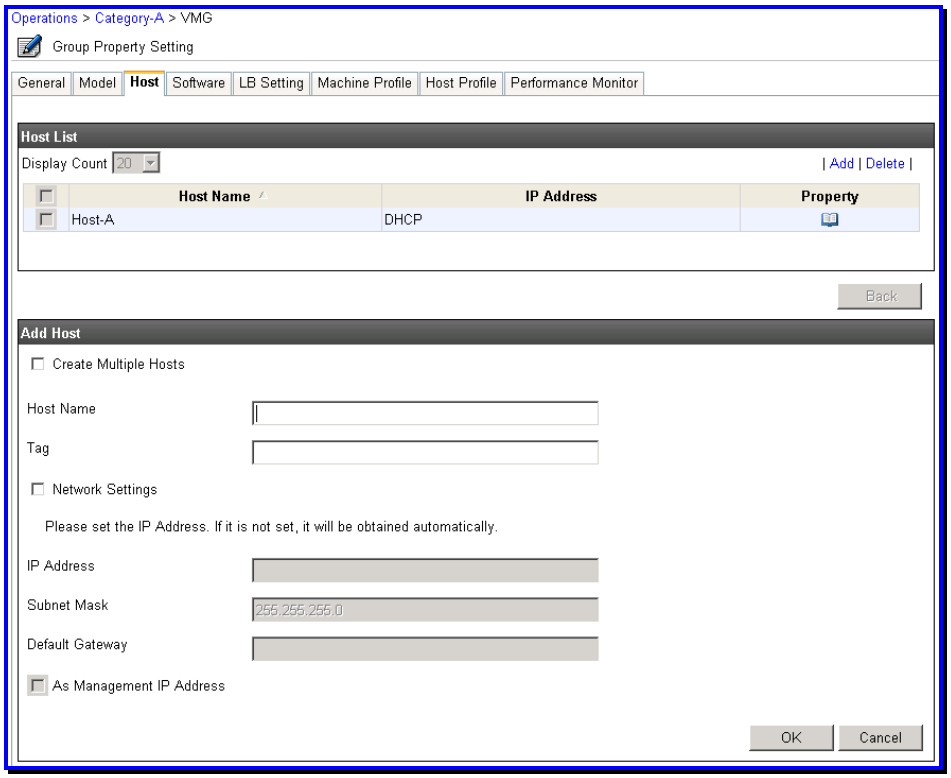
Reference: To configure the Model Property Setting, see Section 5.5, "Configuring Model Properties (For a Physical Machine)," Section 5.6, "Configuring Model Properties (For a Virtual Machine)," or Section 5.7, "Configuring Model Properties (For a Virtual Machine Server)."

5.4.3. Configuring Settings on the Host Tab

On the Host tab, configure the information that does not depend on the machine types, such as a host name and IP address, as a Host Setting.

To configure settings on the Host tab of the Group Property Setting, perform the following procedure:

1. Display the **Group Property Setting** window, and select the **Host** tab.
2. To add a host to **Host List**, click **Add** of the Action menu under **Host List**.
3. **Add Host** is dis**played be**low the **Host List**.



4. To create multiple hosts simultaneously, select the **Create Multiple Hosts** check box.

Note: If the **Create Multiple Hosts** check box is selected, the host names will be created under the following rules:

- The sequential number is added to the end of the host name that is entered in the **Host Name** box.
- If a host name already with a number at the ending is entered, the number next to the host name's ending number is added sequentially.
- If the same host name with the same sequential number already exists during the operation for adding sequential numbers, the unused number next to the host name's ending number is added sequentially.

For example, if "Host1", "Host3", and "Host6" already exist and if you enter "5" in the **Host Count** box, "Host2", "Host4", "Host5", "Host7", and "Host8" are created.

5. Enter the host name in the **Host Name** box. (Required)

Note: To control a load balancer, configure the IP address so that the load balancer will belong to the network address of the real server in the load balancer group. If neither setting is configured, SystemProvisioning does not control a load balancer. In addition, the IP address of the host is configured to *Obtain an IP address automatically*, a load balancer is not controlled.

6. Enter a tag (key word) in the **Tag** box.
7. If the **Create Multiple Hosts** check box is selected, enter the number of units in the **Host Count** box. (Required)

Note: If the **Network Settings** check box is not selected, the upper limit of the number of hosts is "1000."

If the **Network Settings** check box is selected, the upper limit that can be specified in the **Host Count** box is the number of assignable IP addresses over the IP address specified in the **Start IP** box within IP addresses assignable to hosts calculated from IP address specified in the **Subnet Mask** box.

For example, if you specify "192.168.1.250" in the **Start IP** box and "255.255.255.248" in the **Subnet Mask** box, the upper limit that you can specify in the **Host Count** box is "5."

8. To configure network settings, select the **Network Settings** check box.

   If you select this check box, perform the following procedure to configure the network setting for NIC#1. If you do NOT select this check box, skip to the procedure 14 because the IP address is acquired automatically.

   Note: When configuring the IP address for the network setting, specify an IP address in the assignable range.

9. Enter IP address in the **Start IP** box. To create multiple hosts, enter a starting IP address.
10. Enter subnet mask in the **Subnet Mask** box. When creating multiple hosts, the subnet mask is used commonly.
11. Enter the default gateway in the **Default Gateway** box. When creating multiple hosts, the default gateway is used commonly.
12. In the following cases, select the **Management IP Address** in the **As Management IP Address** list.
    - To monitor physical machines with NEC ESMPRO Manager
    - To execute performance monitoring towards managed machines using IP addresses with System Monitor - Performance Monitoring Services
    - To execute alive monitoring towards managed machines with SystemProvisioning
13. Click **OK**. The host is added to **Host List**.
14. Click **Back** to display the details of the group on the Main Window.

Configure Host Setting next.

Note: To configure the Host Setting, see Section 5.8, "Configuring the Host Setting."

5.4.4. Configuring Settings on the Storage Tab

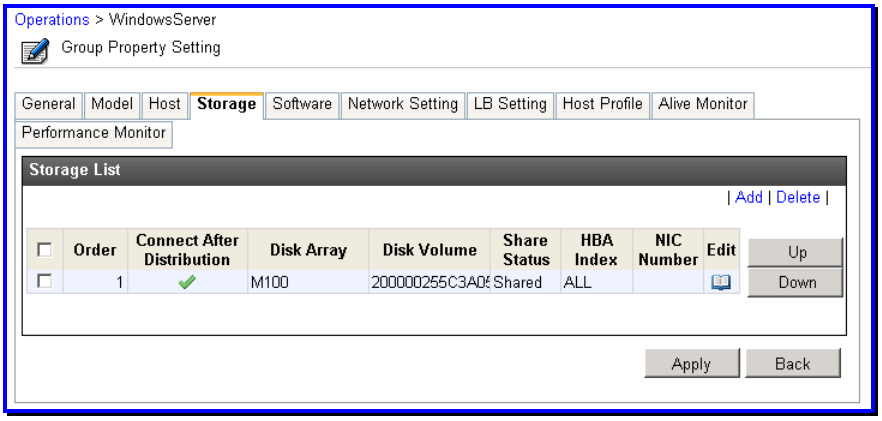
Configure the Storage tab of the Group Property Setting. Storage configured for the group is shared among all hosts working in that group.

The Storage tab is displayed if the model type is set to Physical or VM Server.

To configure settings on the Storage tab, perform the following procedure:

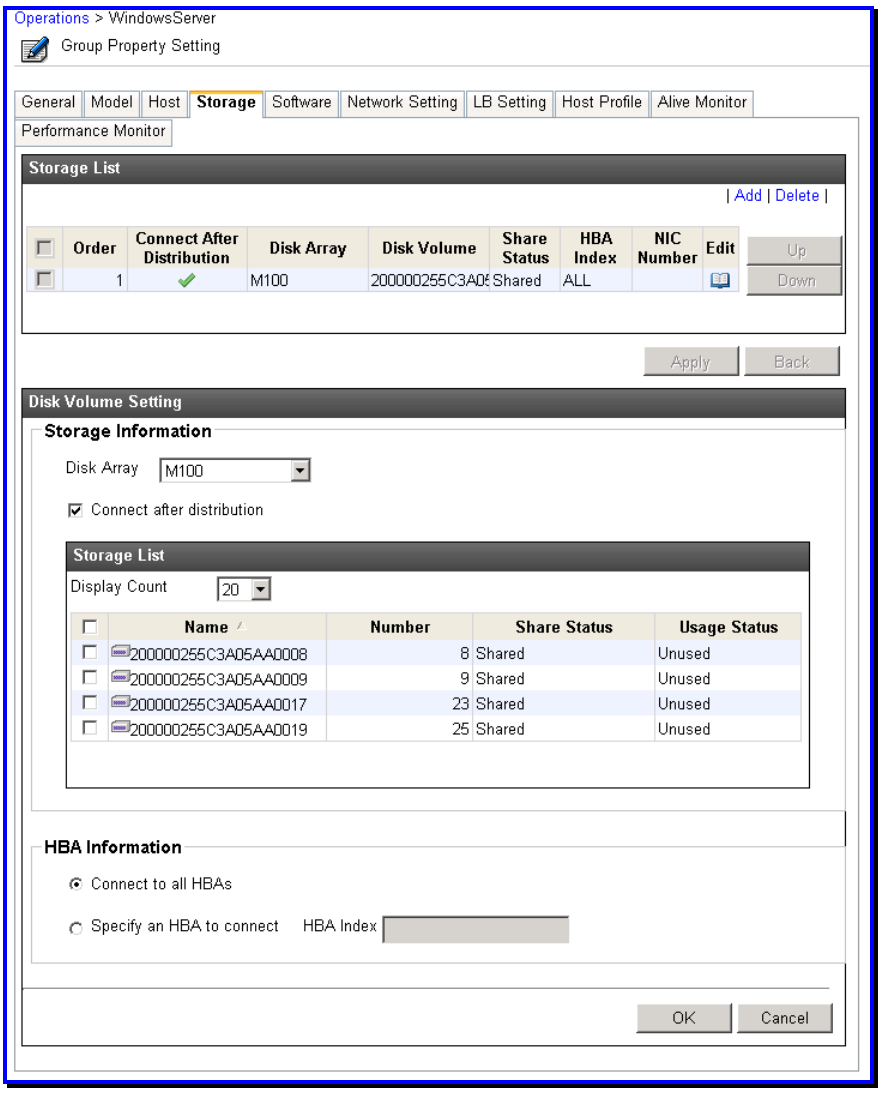
Reference: Set the disk volume for the group to Shared in advance, following the procedure in Subsection 4.6.5, "Configuring a Disk Volume to Shared."

1. Display the **Group Property Setting** window, and select the **Storage** tab.
   The storage configuration applied to the group appears.



2. To add disk volume to **Storage List**, click **Add** of the Action menu on **Storage List**.
3. **Disk Volume Setting** is displayed at the bottom of the screen.
4. Select a disk array from the **Disk Array** list.
   The contents displayed in the lower section differ according to the disk array device which you have selected in the **Disk Array** list.
5. To hide the data device in order not to be distributed by mistake while distributing software, select the **Connect after distribution** check box.

<For NEC Storage, CLARiiON, Symmetrix >



1. Select the check box of a disk volume to register in the list of disk volumes.
2. To connect the disk volume to configure to all HBAs, select **Connect to all HBAs** under **HBA Information**. To specify the HBA to connect, type the HBA index in the **HBA Index** box. This HBA Index indicates the one that you have configured in Subsection 4.9.3, "Configuring Settings on the Storage Tab."

Note:

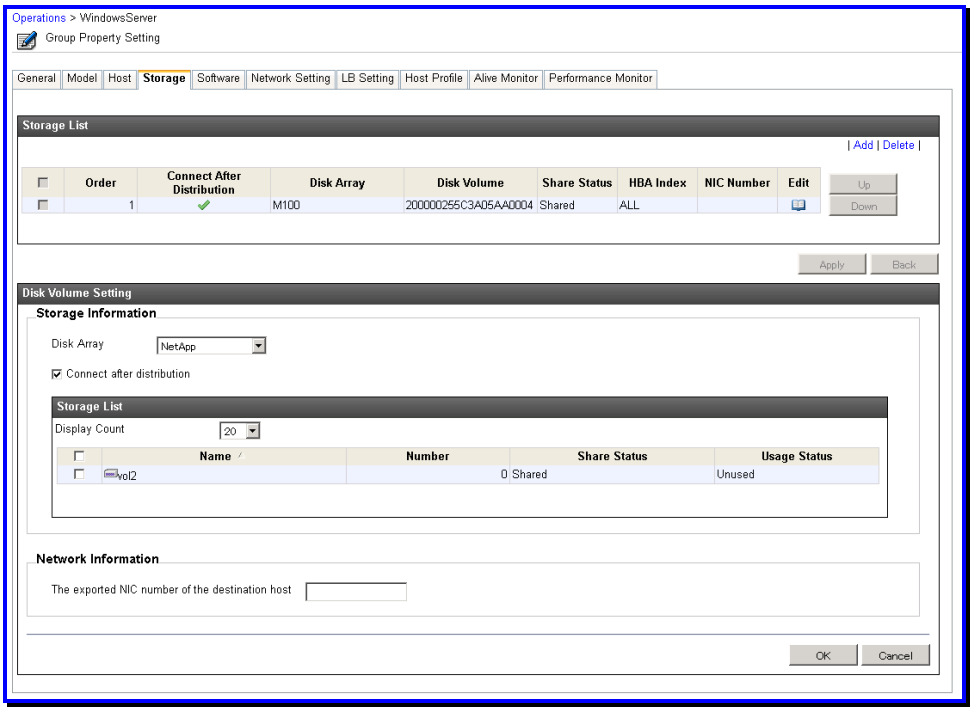
▪ To control storage, both this tab and the Storage tab of the Machine Property Setting must be configured. If either setting is not configured, SystemProvisioning does not control storage. For the settings of the Storage tab of the Machine Property Setting, see Subsection 4.9.3, "Configuring Settings on the Storage Tab."

▪ Note the maximum number of disk volume settings:

▪ For NEC Storage, disk volume settings can be configured up to LD's maximum number that can be assigned to a LD set. Because the LD's maximum number is different according to the models, see the manual of your NEC Storage.

▪ For Symmetrix, disk volume settings can be configured up to the maximum spec of the OS.

< For NetApp >



1. Select the check box of a disk volume to register in the list of disk volumes.
2. To specify the host or IP address of the destination host, type the NIC number in the **The exported NIC number of the destination host** box on the **Network Information** box. Specify the NIC number with the IP address configured in Subsection 5.8.2, "Configuring Settings on the Network Tab." If a single NIC has multiple IP addresses, subsequent IP addresses can be specified by separating those IP addresses with a single-byte slash like "1/2." If you want to expose the disk volume by a host name, set this box to blank.

Note: To control storage, the Network tab of the host and the Machine Property Setting must be configured together. If either setting is not configured, SystemProvisioning does not control storage. When the host name is set up, the setting of name resolution such as DNS settings for the disk array is required so that IP address can be obtained with the host name. For details about the Network tab of the host, see Subsection 5.8.2, "Configuring Settings on the Network Tab." For the Network tab of the Machine Property Setting, see Subsection 4.9.2, "Configuring Settings on the Network Tab."

6. Click **OK**. The disk volume is added to Storage List.
7. Click **Apply**.

5.4.5. Configuring Settings on the Software Tab

To configure settings on the Software tab of the Group Property Setting, perform the following procedure:

1. Display the **Group Property Setting** window, and select the **Software** tab.
2. The registered software is listed on the **Software List**.

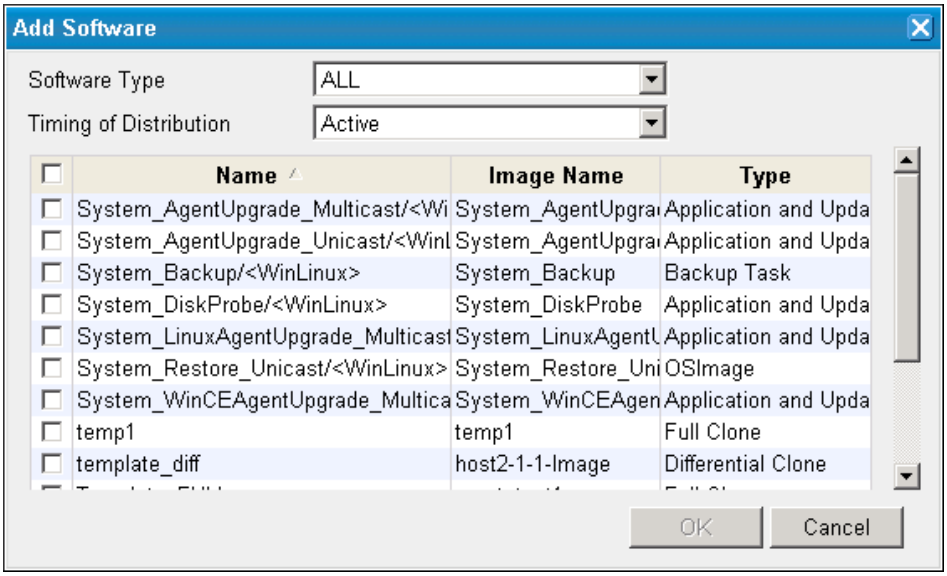
Reference: For distribution methods and types of software, see Subsection 1.1.4, "Software."

3. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.

Note: You cannot change the distribution order across the different distribution timing.

4. To add software to distribute to **Software List**, click **Add** of the Action menu under **Software List**.

5. The **Add Software** dialog box is displayed.



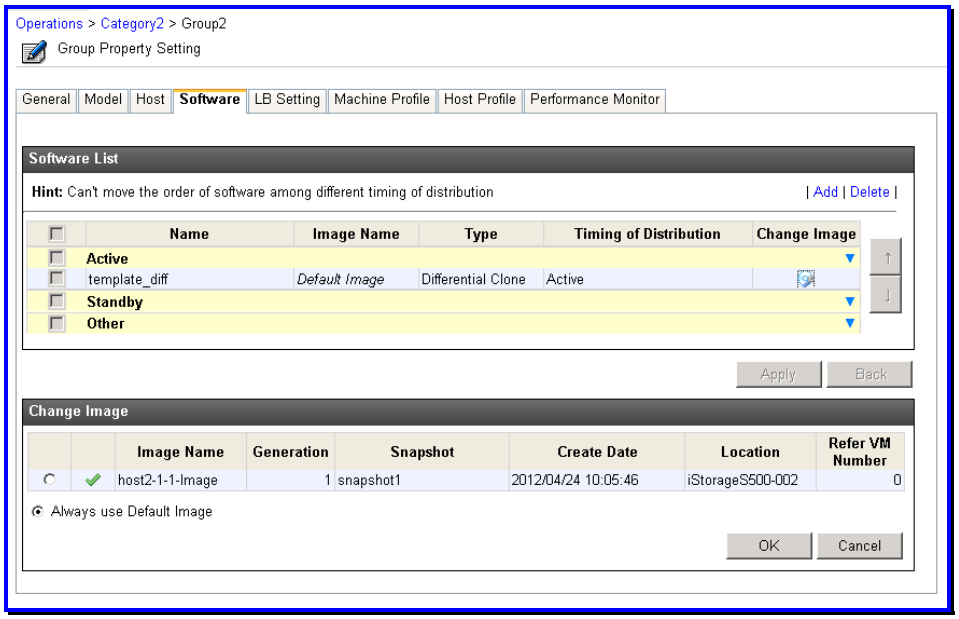
6. Select the software type to display in the **Software Type** list.
7. Select the timing of distributing software from the **Timing of Distribution** box.
8. Select the check box of the software to distribute under **Add Software**.
9. Click **OK**. The software is added to **Software List**.
10. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.
11. Click **Apply**.

To change the images, follow the procedure below.

Note: The images can be changed only when the software types are Differential Clone and Disk Clone.

Reference: For the usage of the images, see Section 2.7, "Image Management (Differential Clone, Disk Clone)" in *SigmaSystemCenter Overview Reference Guide*.

1. Click the **Change Image**.



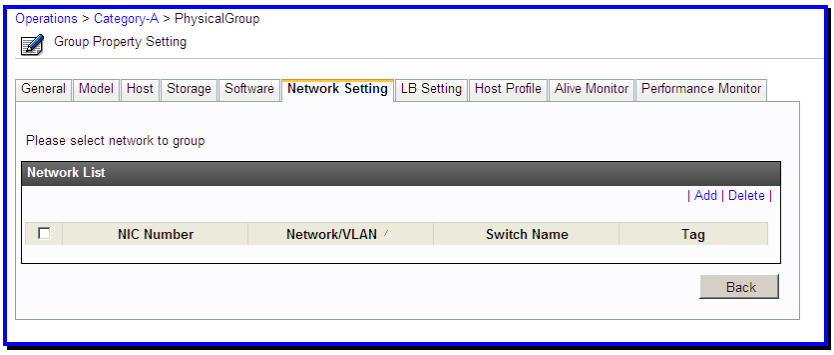
2. Select the option of the image to distribute under **Change Image**. To use the template's default image without fixing, select the **Always use Default Image** option.
3. Click **OK**, then the image of software under **Software List** will be changed.

5.4.6. Configuring Settings on the Network Setting Tab (if the Model Type is Physical or VM Server)

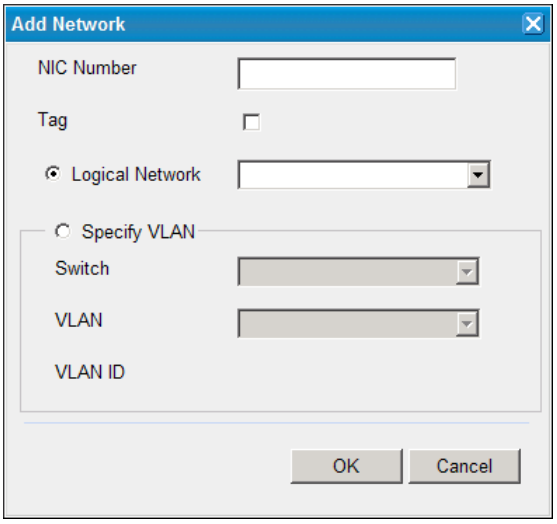
To configure the common network setting for physical machines which are activated at an operation group, perform the following procedure on the Network Setting tab:

If the model type is VM, this tab does not appear.

1. Display the **Group Property Setting** window, and click the **Network Setting** tab.



2. To add a network setting to **Network List**, click **Add** of the Action menu under **Network List**.
3. **Add Network** dialog box appears.



4. Enter the NIC number for identifying the port for VLAN in the **NIC Number** box. To enter multiple NIC numbers, separate them with a comma (,).

Note: To configure the virtual network, the NIC number must be configured to the activated machines. For details, see 4.9.2, "Configuring Settings on the Network Tab."

5. To set the tag information on the VLAN, select the **Tag** check box.
6. Select **VLAN** at either the **Network** or **Specify VLAN**. At the **Logical Network**, select the network to connect in the list. At the **Specify VLAN**, select the switch and VLAN in the list respectively.
7. Click **OK**. The VLAN is added to **Network List**.

8. Click **Back** to display the details of the group on the Main Window.

Note:

▪ To control VLAN, both this setting and the Network tab of the Machine Property Setting must be configured. If either setting is not configured, SystemProvisioning does not control a VLAN. For the settings of the Network tab of the Machine Property Setting, see Subsection 4.9.2, "Configuring Settings on the Network Tab."

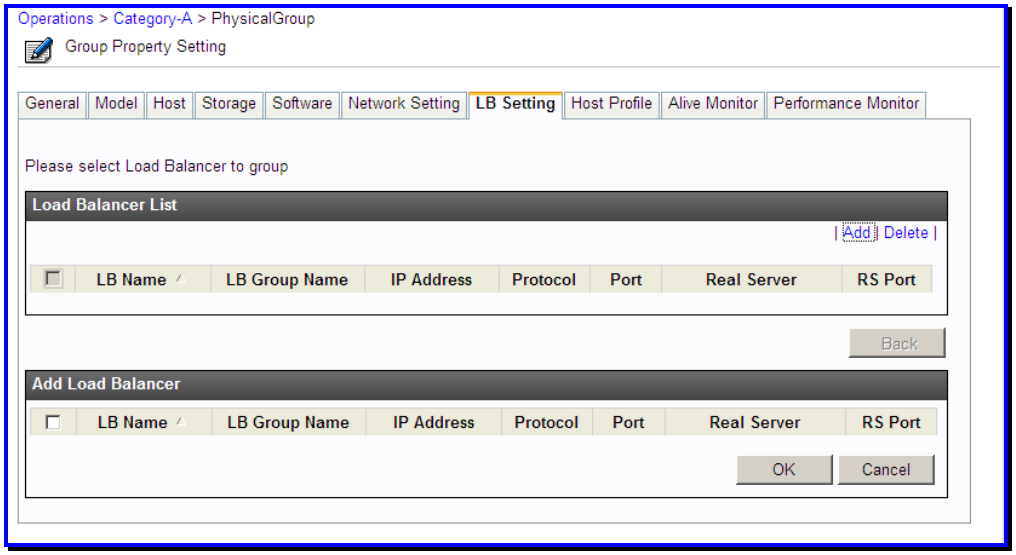
▪ If VLAN is configured on the port of the switch that is connected to the NIC of a machine in standby, VLAN control might fail when the machine gets activated. To control VLAN, release the VLAN on the target port.

▪ If the **Virtual Network** tab of the Model Property Setting is configured, this tab's setting is ignored.

5.4.7. Configuring Settings on the LB Setting Tab

To configure settings on the LB Setting tab of the Group Property Setting, perform the following procedure:

1. Display the **Group Property Setting** window, and select the **LB Setting** tab.
2. To add a load balancer to **LB List**, click **Add** of the Action menu under **LB List**.
3. **Add Load Balancer** is displayed below **LB List**.



4. Select the load balancer to add under **Add Load Balancer**.
5. Click **OK**. The load balancer is added to the **LB List**.
6. Click **Back** to display the details of the group on the Main Window.

5.4.8. Configuring Settings on the Machine Profile Tab (if the Model Type is VM)

The Machine Profile tab is used for configuring the devices to be assigned to newly created virtual machines only if the managed machine is a virtual machine.

If the Model Type is VM, the Machine Profile tab is displayed.

The Machine Profile definition is used while the Create and Assign Machine functionality or the Reconfigure functionality is being executed.

The Machine Profile definition on the Group Property Setting is the default value of models and hosts under the group.

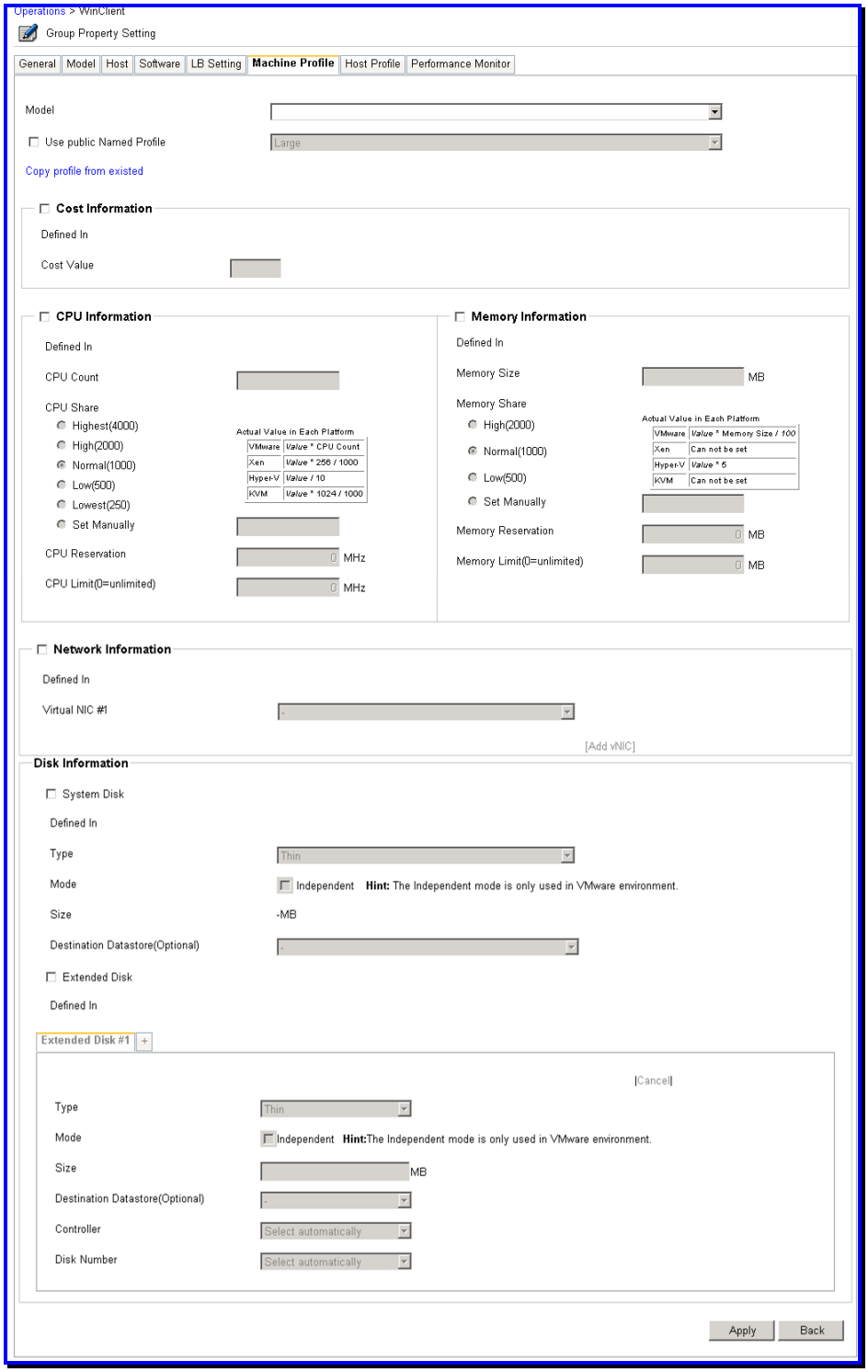
So if the default values of models and hosts under the group are not changed, the Machine Profile on the Group Property setting is used to create a virtual machine.

If a template is configured on the group, the setting value of the template is the default value of the group.

Levels, such as Templates, Group, and Model, where the valid values exist are displayed in the Defined In. A device definition is valid if the check box is selected.

To configure the Machine Profile tab, perform the following procedure:

1. Display the **Group Property Setting** window, and click the **Machine Profile** tab.



2. If the Machine Profile is configured on the Model Property Setting of the Group, a model is selectable in the **Model** list to be used as the default value.

3. To use the open Machine Profile, select the **Use public Named Profile** check box, and select a Machine Profile in the pull down list. To use a copy of the open Machine Profile, click **Copy profile from existed**, and select a Machine Profile from the pull down list.
4. To change the default cost setting, select the **Cost Information** check box.
   1. Enter the cost value of the virtual machine to create in the **Cost Value** box.
5. To change the default CPU setting, select the **CPU Information** check box.
   1. Enter the CPU count of a virtual machine to create in the **CPU Count** box.
   2. To configure the **CPU Share**, select either **Highest (4000)**, **High (2000)**, **Normal (1000)**, **Low (500)** or **Lowest (250)**. To configure a value other than the above options, select **Set Manually** and enter the value in the box on the right of the **Set Manually**.

      The values entered here will be changed according to the virtualized infrastructures as follows:

VMware	The configured value * the number of CPUs
Xen	The configured value * 256 / 1000
Hyper-V	The configured value / 10
KVM	The configured value * 1024 / 1000

   3. Enter the amount of the CPU reservation in the **CPU Reservation** box. If you do not reserve CPU, enter "0."
   4. Enter the upper limit of CPU resources in the **CPU Limit** box. If the limit setting is unnecessary, enter "0".

      Note: The CPU Reservation value and the CPU Limit value configured on Hyper-V are calculated as follows:

      The configured value on SigmaSystemCenter

      = (the configured value on Hyper-V / 100)

      * The number of CPUs on the virtual machine

      * The clock frequency of the virtual management server (MHz)

6. To change the default memory setting, select the **Memory Information** check box.
   1. Enter the memory size of the virtual machine to create in the **Memory Size** box.
   2. Select the memory share of the virtual machine to create und**er Memory Share**. If you select **Set Manually**, enter a memory share value in the text box.

      Note: For Hyper-V, this value is used if Dynamic Memory is enabled. Set the value in the range of 0 to 2000.

3. Enter the memory reservation of the virtual machine to create in the **Memory Reservation** box.
4. Enter the memory limit of the virtual machine to create in the **Memory Limit** box.

7. To change the default network setting, select the **Network Information** check box. Then, select the destination to which the Virtual NIC connects from the networks and VLANs in the list of the proposed destinations, or enter the name of the destination manually. In the Xen environment, however, the destinations to which Virtual NICs connect cannot be created by using SigmaSystemCenter. They must be created on Citrix Xen PoolMaster by using the virtual infrastructure products.
   1. Before selecting a destination in the list of proposed destinations, the following operations must be performed.
      - Create a template, and configure the template on the software setting of a group or a model.
      - Add the network from the **Switch** on the **Resource** view.
      - Create the destination to which the Virtual NIC connects on the virtual machine server by using the virtual infrastructure product.

        On the VM server model setting of the model to which the virtual machine to create belongs, set the model to which the virtual machine server that the destination has been created on belongs.

   2. To enter the name of the destination to which the Virtual NIC connects manually, select **Edit here…** in the pull down list to switch to the manual input mode. Then, enter the name of the destination in the text box.
      - For VMware, enter the name of the destination port group.
      - For Hyper-V, enter the name in the following format: "*NetworkName*-VLAN:*VlanId*"

        NetworkName is the name of the destination virtual network.

        "-VLAN:" is the fixed string

        VlanId is VLAN's ID. If you are not configuring the VLAN's ID, it will be "NONE".
      - For XenServer, enter the name of the destination network.
      - For KVM, enter the name of the interface, or the name of the network to be connected to.

8. To change the default system disk setting, select the **System Disk** check box. The disk size of the system disk will be displayed as a reference if the information is obtainable from the template which is configured on the group. If the information cannot be obtained, it will not be displayed. The disk size cannot be changed on the **Machine Profile** tab setting.
   1. Select the **Thin** or **Thick** in the **Type** list. Select **Thick** to create a fixed size disk when creating a virtual machine. Select **Thin** to assign the necessary size disk for use dynamically.

Note: For Hyper-V, **Thin** means *Dynamically expanding VHD* and **Thick** means *Fixed Size VHD.*

2. To set the Independent mode, select the **Independent** check box on the **Mode**. This disk mode setting is available only for the VMware environment.
3. Select the destination datastore in the **Destination Datastore** list. This setting does not have to be configured. If this setting is not configured, SigmaSystemCenter selects the destination datastore while creating a virtual machine. If the **Tag** is selected, this setting also can be specified by using a storage attribute, or a tag. The tag information needs to be configured when editing the datastore in advance.

9. To change the default extended disk setting, select the **Extended Disk** check box.
   1. Select the **Thin, Thick, RDM (Physical)** or **RDM (Virtual)** in the **Type** list. To create the configured size disk while creating a virtual machine, select **Thick**. To assign the disk as needed while using, select **Thin**. Select whether **RDM (Physical)** or **RDM (Virtual)** when the physical disk is directly connected to the virtual machine. VMware environment supports both RDMs. Hyper-V environment supports **RDM (physical)** only. In other environment, RDM is not supported.
   2. To set the Independent mode for the disk, select the **Independent** check box on the **Mode**. This disk mode setting is available only for the VMware environment.
   3. Enter the size of extended disk in the **Size** box.
   4. Select the destination datastore in the **Destination Datastore** list. This setting does not have to be configured. If this setting is not configured, SigmaSystemCenter selects the destination datastore while creating a virtual machine. If the **Tag** is selected, this setting also can be specified by using a storage attribute, or a tag. The tag information needs to be configured when editing the datastore in advance.
   5. Select the controller of the expanded disk in the **Controller** list.

      You can select the **Select automatically** setting. If **Select automatically** is enabled, SigmaSystemCenter selects where to add the expanded disk during the virtual machine creation and adds the expanded disk. Other options except **Select automatically** vary by virtual infrastructure products.
   6. Select the expanded disk number in the **Disk Number** list.

      This cannot be specified if the **Select automatically** is selected in the Controller list. If **Select automatically** is enabled, SigmaSystemCenter selects where to add the expanded disk during the virtual machine creation and adds the expanded disk. If the **Select automatically** is not selected, you can specify where the expanded disk is added to, and the location varies by controllers.

Selectable controllers and disk numbers for each virtual infrastructure product are shown as follows:

Virtual Infrastructure	Controller	Disk Number
VMware	IDE0, IDE1	0, 1
	SCSI0 - SCSI3	0 - 15 (except 7)
Xen	SCSI0	0 - 7
Hyper-V	IDE0,IDE1	0,1
	SCSI1 - SCSI3	0 - 63
KVM	IDE0, IDE1	0,1
	PCI0	0 - 31

If other devices such as a system disk or a CD drive are connected to controllers and disk numbers above, the controllers and disk numbers cannot be utilized for expanded disks. The following combinations of controllers and disk numbers are preferably used for the system disk.

- VMware: IDE0:0/SCSI0:0
- Xen: SCSI0:0
- Hyper-V: IDE0:0
- KVM : Not statically defined

5.4.9. Configuring Settings on the Host Profile Tab (Windows Server)

On the Host Profile tab, configure the machine specific information of a Windows Server machine to assign to a host.

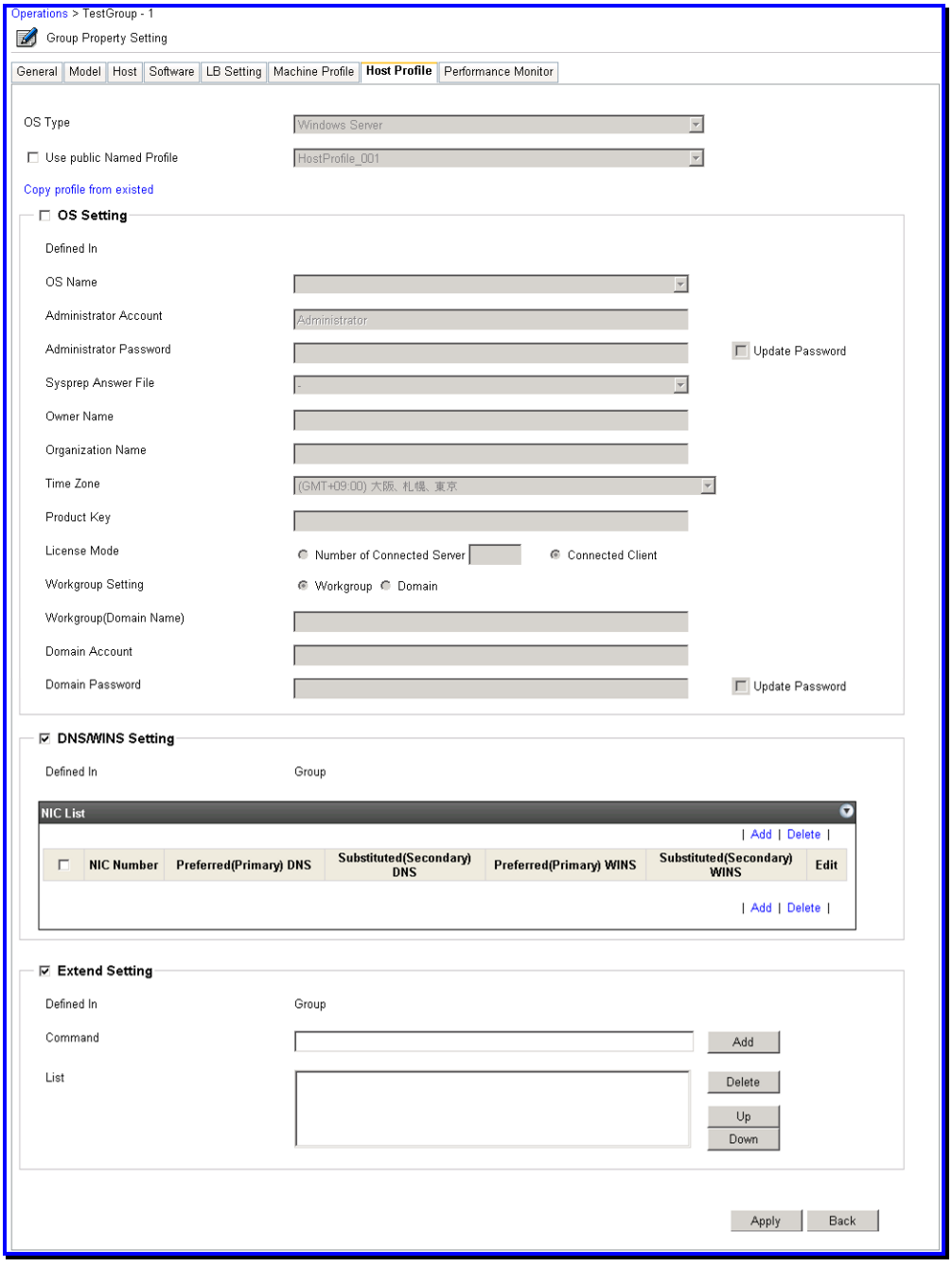
The definition of the host profile is used in the following processes: the scenario distribution with running the OS installation by disk duplication, Create and Assign Machine, and Reconfiguration.

To apply machine specific information to a managed machine, ensure that the OS setting is configured. The OS setting must be configured on any of a group property setting, a host setting, or a template.

The host profile definition configured on the group property setting is used as the default value of the models and the hosts under the group.

Reference: For details of a host profile, see Subsection 1.3.2, "Applicable Specific Information in Image Deployment" and Subsection 1.3.3, "Host Profile" in *SigmaSystemCenter Overview Reference Guide*.

1. Display the **Group Property Setting** window, and click the **Host Profile** tab.



2. To use the open host profile, select the **Use public Named Profile** check box, and select a host profile in the pull down list. To use a copy of the open host profile, click **Copy profile from existed**, and select a host profile from the pull down list.
3. To configure the OS setting, select the **OS setting** check box.
4. Select the kind of the OS in the **OS Name** list.

Note: Supported OSs are different depending on the compatible products. For details, see the support information of each product.

Reference: If you configure the OS name, you don't have to create a disk duplication data file for a master VM when you use the customization of DPM. For details, see Subsection 6.1.4, "Creating a Virtual Machine Using the Differential Clone Method" and 6.1.5, "Creating a Virtual Machine Using the Disk Clone Method".

5. To change the administrator password, select the **Update Password** check box, and enter the new password in the **Administrator Password** box.
6. To use the Sysprep answer file, select Sysprep answer file in the **Sysprep Answer file** list.

Note: In the case of using the customization of DPM, the Sysprep answer file is available only when the target OS is Windows Vista or later. If the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, this setting is ignored.

7. Enter a name of the OS license owner in the **Owner Name** box.
8. Enter an organization name of the OS license in the **Organization Name** box.
9. Select the time zone in the **Time Zone** list.

Note: In the case of using the customization of DPM, this setting is available by using a Sysprep answer file only when the target OS is Windows Vista or later. If the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, this setting is ignored because the Sysprep answer file is not available in these operating systems.

10. Enter the product key of the OS in the **Product Key** box.
11. Select the license mode as **License Mode**. If you select the **Number of Connected Server**, enter the number of servers to connect simultaneously in the text box.

Note: In the case of using the customization of DPM, this setting is ignored.

12. Select either of **Workgroup** or **Domain** as the **Workgroup Setting**.
13. If you selected **Workgroup** as the **Workgroup Setting**, enter the work group name in the **Work Group (Domain Name)** box. If you selected **Domain**, enter the domain name.
14. If you selected **Domain** as the **Workgroup Setting**, enter the domain account in the **Domain Account** box.

15. If you selected **Domain** as the **Workgroup Setting** and want to change the domain password, select the **Update Password** check box, and enter the domain password in the **Domain Password** box.
16. To configure the DNS / WINS setting, select the **DNS / WINS Setting** check box.
17. Click **Add** on the **Action** menu from **NIC List** to display **Add NIC** window.
18. Select the NIC number to be added from the **NIC number** list.

Note: If the customization of DPM is used and if the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, the upper limit of the NIC is 4.

19. Enter the IP address of the primary DNS in the **Preferred (Primary) DNS** box.
20. Enter the IP address of the secondary DNS in the **Substituted (Secondary) DNS** box.
21. Enter the IP address of the primary WINS in the **Preferred (Primary) WINS** box.
22. Enter the IP address of the secondary WINS in the **Substituted (Secondary) WINS** box.
23. To configure several NICs, perform iteratively these procedures from procedure 18 to procedure 22 as you need.
24. To configure extend settings, select the **Extend Setting** check box. For **Extend Setting**, configure the command to be executed when first logging into the OS of a managed machine after customization.

Note: In the case of using the customization of DPM, this setting is ignored.

25. To add a command, enter the command in the **Command** box, and click **Add** to add the command to the **List**.

Note: In the case of using the customization of DPM, this setting is available by using a Sysprep answer file only when the target OS is Windows Vista or later. If the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, this setting is ignored because the Sysprep answer file is not available in these operating systems.

26. Click **Apply**.

5.4.10. Configuring Settings on the Host Profile Tab (Linux)

On the Host Profile tab, configure the machine specific information of a Linux machine to assign to a host.

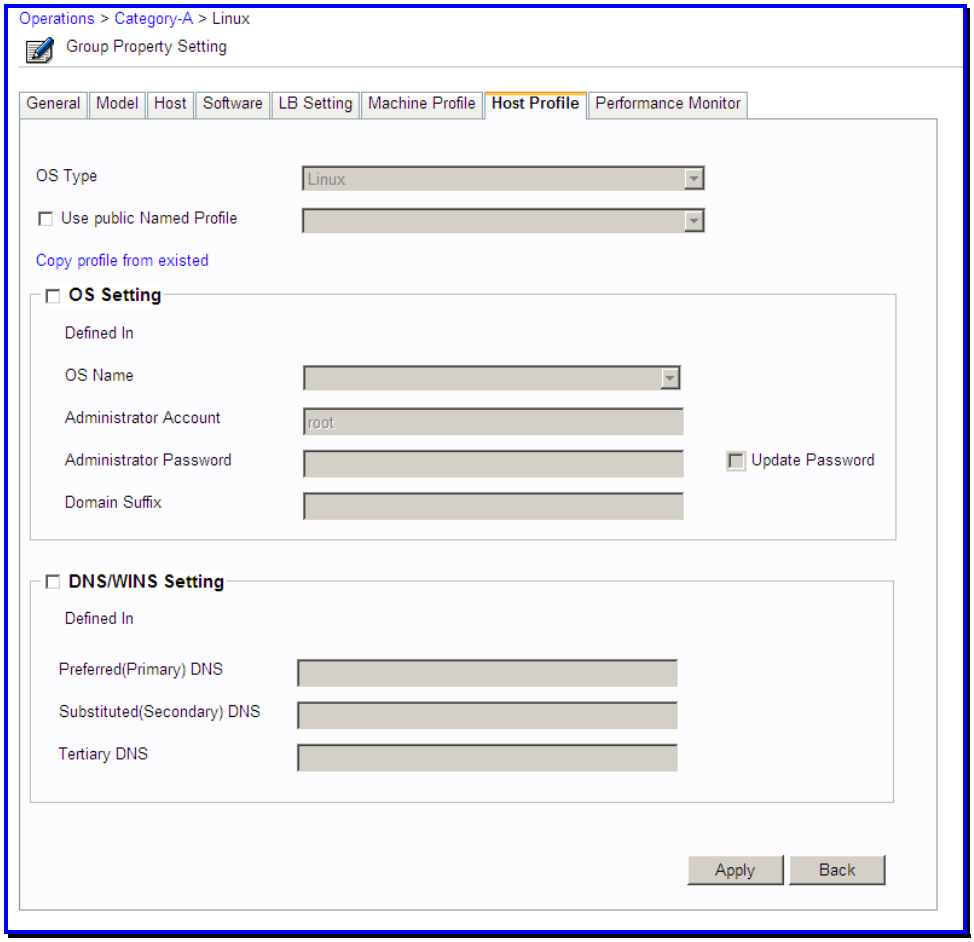
The definition of the host profile is used in the following processes: the scenario distribution with running the OS installation by disk duplication, Create and Assign Machine, and Reconfiguration.

To apply machine specific information to a managed machine, ensure that the OS setting is configured. The OS setting must be configured on any of a group property setting, a host setting, or a template.

The host profile definition configured on the group property setting is used as the default value of the models and the hosts under the group.

Reference: For details of a host profile, see Subsection 1.3.2, "Applicable Specific Information in Image Deployment" and Subsection 1.3.3, "Host Profile" in *SigmaSystemCenter Overview Reference Guide*.

1. Display the **Group Property Setting** window, and click the **Host Profile** tab.



2. To use the open host profile, select the **Use public Named Profile** check box, and select a host profile in the pull down list. To use a copy of the open host profile, click **Copy profile from existed**, and select a host profile from the pull down list.
3. To configure the OS setting, select the **OS Setting** check box.
4. Select the kind of the OS in the **OS Name** list. Configure this item as needed because this item is not required.
5. To change the administrator password, select the **Update Password** check box, and enter the new password in the **Administrator Password** box.

6. Enter the domain suffix in the **Domain Suffix** box.
7. To configure the DNS / WINS setting, select the **DNS / WINS Setting** check box.
8. Enter the IP address of the primary DNS in the **Preferred (Primary) DNS** box.
9. Enter the IP address of the secondary DNS in the **Substituted (Secondary) DNS** box.
10. Enter the IP address of the tertiary DNS in the **Tertiary DNS** box.
11. Click **Apply**.

5.4.11. Configuring Settings on the Host Profile Tab (Windows Client)

On the Host Profile tab, configure the machine specific information of a Windows Client machine to assign to a host.

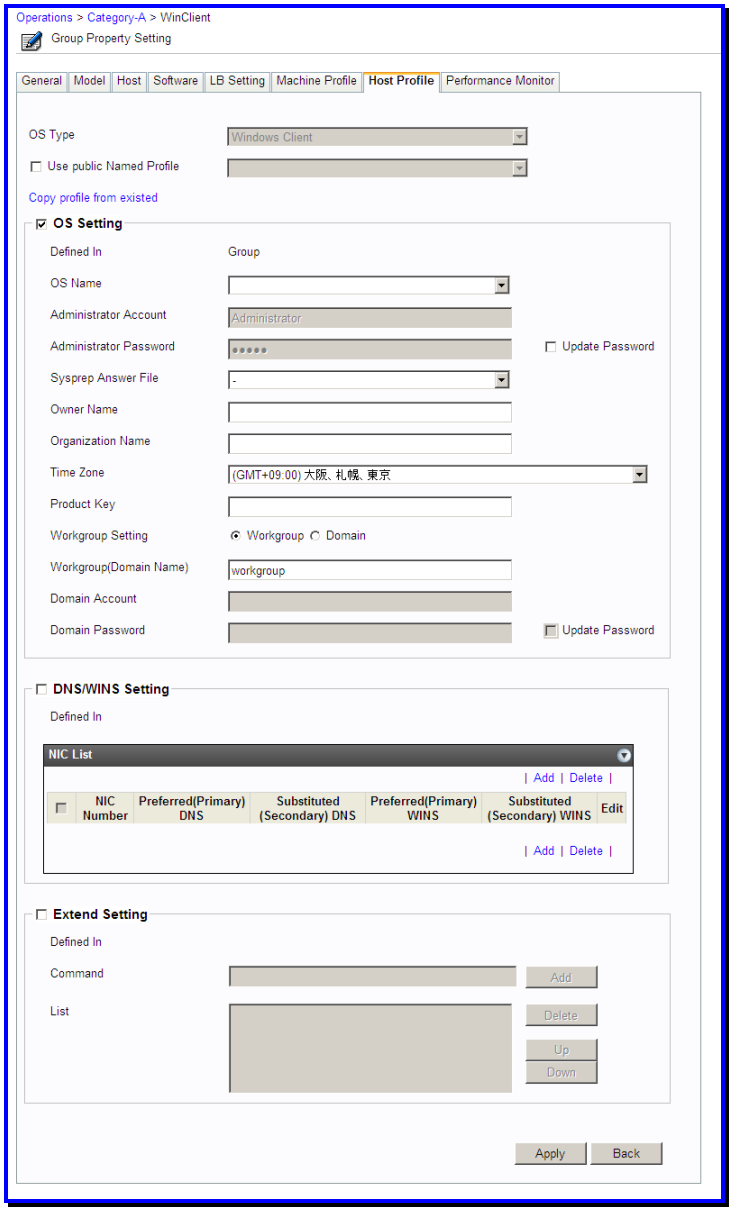
The definition of the host profile is used in the following processes: the scenario distribution with running the OS installation by disk duplication, Create and Assign Machine, and Reconfiguration.

To apply machine specific information to a managed machine, ensure that the OS setting is configured. The OS setting must be configured on any of a group property setting, a host setting, or a template.

The host profile definition configured on the group property setting is used as the default value of the models and the hosts under the group.

Reference: For details of a host profile, see Subsection 1.3.2, "Applicable Specific Information in Image Deployment" and Subsection 1.3.3, "Host Profile" in *SigmaSystemCenter Overview Reference Guide*.

1. Display the **Group Property Setting** window, and click the **Host Profile** tab.



2. To use the open host profile, select the **Use public Named Profile** check box, and select a host profile in the pull down list. To use a copy of the open host profile, click **Copy profile from existed**, and select a host profile from the pull down list.
3. To configure the OS setting, select the **OS Setting** check box.
4. Select the kind of the OS in the **OS Name** list.

Note: Supported OSs are different depending on the compatible products. For details, see the support information of each product.

Reference: If you configure the OS name, you don't have to create a disk duplication data file when you use the customization of DPM. For details, see Subsection 6.1.4, "Creating a Virtual Machine Using the Differential Clone Method" and 6.1.5, "Creating a Virtual Machine Using the Disk Clone Method."

5. To change the administrator password, select the **Update Password** check box, and enter the new password in the **Administrator Password** box.
6. To use the Sysprep answer file, select Sysprep answer file in the **Sysprep Answer file** list.

Note: In the case of using the customization of DPM, the Sysprep answer file is available only when the target OS is Windows Vista or later. If the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, this setting is ignored.

7. Enter a name of the OS license owner in the **Owner Name** box.
8. Enter an organization name of the OS license in the **Organization Name** box.
9. Select the time zone in the **Time Zone** list.

Note: In the case of using the customization of DPM, this setting is available by using a Sysprep answer file only when the target OS is Windows Vista or later. If the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, this setting is ignored because the Sysprep answer file is not available in these operating systems.

10. Enter the product key of the OS in the **Product Key** box.
11. Select either of **Workgroup** or **Domain** as the **Workgroup Setting**.
12. If you selected **Workgroup** as the **Workgroup Setting**, enter the work group name in the **Work Group (Domain Name)** box. If you selected **Domain**, enter the domain name.
13. If you selected **Domain** as the **Workgroup Setting**, enter the domain account in the **Domain Account** box.
14. If you selected **Domain** as the **Workgroup Setting** and want to change the domain password, select the **Update Password** check box, and enter the domain password in the **Domain Password** box.
15. To configure the DNS / WINS setting, select the **DNS / WINS Setting** check box.
16. Click **Add** in the **Action** menu on the NIC List, display **Add NIC** window.
17. Select the NIC number to be added from the **NIC Number** box.

Note: If customization of DPM is used and if the target OS is Windows 2000, Windows Server 2003, or Windows XP, the upper limit of the NIC is 4.

18. Enter the IP address of the primary DNS in the **Preferred (Primary) DNS** box.

19. Enter the IP address of the secondary DNS in the **Substituted (Secondary) DNS** box.
20. Enter the IP address of the primary WINS in the **Preferred (Primary) WINS** box.
21. Enter the IP address of the secondary WINS in the **Substituted (Secondary WINS** box.
22. To configure several NICs, perform iteratively these procedures from procedure 17 to procedure 21 as you need.
23. To configure extend setting, select the **Extend Setting** check box. For extend setting, configure the command to be executed when first logging into the OS of a managed machine after customization.

Note: In the case of using the customization of DPM, this setting is ignored.

24. To add a command, enter the command in the **Command** box, and click **Add** to add the command to the **List**.

Note: In the case of using the customization of DPM, this setting is available by using a Sysprep answer file only when the target OS is Windows Vista or later. If the target OS is any of Windows 2000, Windows Server 2003, or Windows XP, this setting is ignored because the Sysprep answer file is not available in these operating systems.

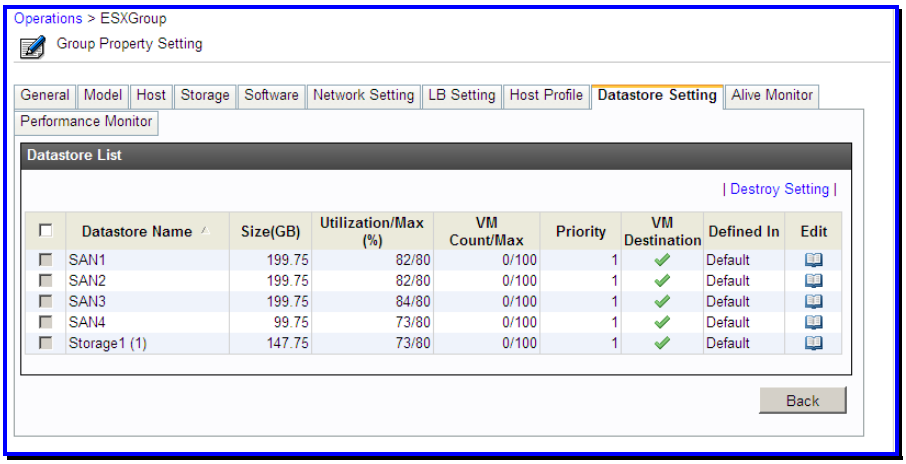
25. Click **Apply**.

5.4.12. Configuring Settings on the Datastore Tab (if the Model Type is VM Server)

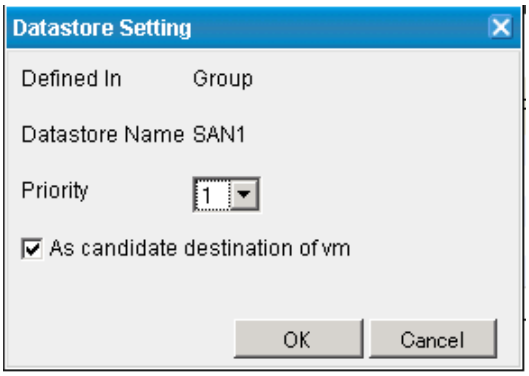
The Datastore tab appears if the VM Server is configured on the Model Type of the model property.

To configure the Datastore tab, perform the following procedure:

1. Display the **Group Property Setting** window, and click the **Datastore Setting** tab.



2. To edit the datastore setting under **Datastore List**, click the **Edit** of the datastore.
3. **Datastore Setting** dialog box appears**.**



4. **Select** the priority of the datastore in the **Priority** list.
5. To exclude the datastore as the destination to create VM, clear the **As candidate destination of vm** check box.
6. Click **OK**. The datastore information under **Datastore List** is changed.
7. Click **Back** to display details of the group on the Main Window.

5.4.13. Configuring Settings on the Alive Monitor Tab

Configure the following settings for the machine activated at the group on the Alive Monitor tab.

- Registering the machine to NEC ESMPRO Manager as a managed machine

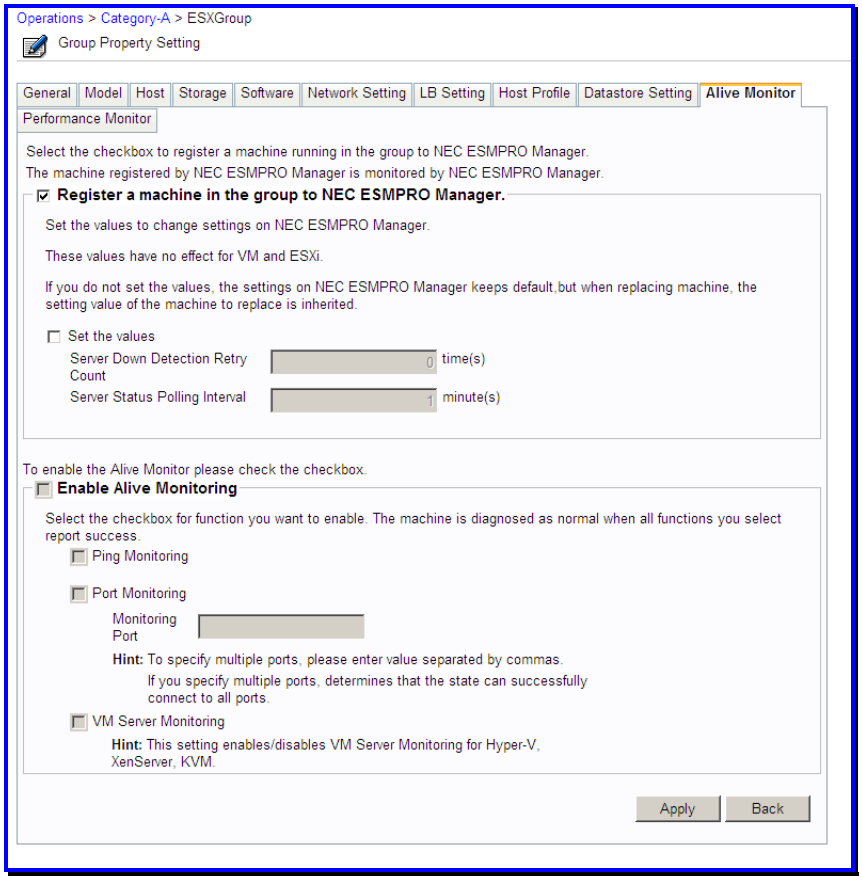
- Executing the alive monitoring towards the machine with Ping Monitoring and Port Monitoring

Perform the following procedure:

Note: If the check box of the target model, located under Model Type of Monitor Target on the Alive Monitor tab of the Management view, is cleared, the setting information concerning the alive monitoring feature does not appear. In addition, the target model is VM, this tab itself does not appear.

---

1. Display the **Group Property Setting** window, and click the **Alive Monitor** tab.


Operations > Category-A > ESXGroup
Group Property Setting
General
Model
Host
Storage
Software
Network Setting
LB Setting
Host Profile
Datastore Setting
Alive Monitor
Performance Monitor
Select the checkbox to register a machine running in the group to NEC ESMPRO Manager.
The machine registered by NEC ESMPRO Manager is monitored by NEC ESMPRO Manager.
Register a machine in the group to NEC ESMPRO Manager.
Set the values to change settings on NEC ESMPRO Manager.
These values have no effect for VM and ESXi.
If you do not set the values, the settings on NEC ESMPRO Manager keeps default,but when replacing machine, the setting value of the machine to replace is inherited.
Set the values
Server Down Detection Retry Count
0
time(s)
Server Status Polling Interval
1
minute(s)
To enable the Alive Monitor please check the checkbox.
Enable Alive Monitoring
Select the checkbox for function you want to enable. The machine is diagnosed as normal when all functions you select report success.
Ping Monitoring
Port Monitoring
Monitoring Port
Hint: To specify multiple ports, please enter value separated by commas.
If you specify multiple ports, determines that the state can successfully connect to all ports.
VM Server Monitoring
Hint: This setting enables/disables VM Server Monitoring for Hyper-V, XenServer, KVM.
Apply
Back

2. To register the machine activated at the group to NEC ESMPRO Manager, select the **Register a machine in the group to NEC ESMPRO Manager** check box. This check box is selected by default.

Note: The **Register a machine in the group to NEC ESMPRO Manager** check box appears only if the model type is **Physical** or **VM Server**. If the model type is **VM**, the items relating to the **Register a machine in the group to NEC ESMPRO Manager** check box do not appear.

---

3. To set the values for the Server Down Detection Retry Count and Server Status Polling Interval of a machine to be registered, select the **Set the values** check box.
4. Enter the value of the retry count to detect server down in the **Server Down Detection Retry Count** box.
5. Enter the value of the server status polling interval in the **Server Status Polling Interval** box.
6. To execute the alive monitoring towards the machine activated at the group with Ping Monitoring or Port Monitoring, select the **Enable Alive Monitoring** check box. This check box is cleared by default.

Note: Either of the **Register a machine in the group to NEC ESMPRO Manager** check box and the **Enable Alive Monitoring** check box can be selected. If the **Register a machine in the group to NEC ESMPRO Manager** check box is selected, NEC ESMPRO Manager executes the alive monitoring for a managed machine. If the **Enable Alive Monitoring** check box is selected, SystemProvisioning executes the alive monitoring.

7. To monitor the machine activated at the group with Ping, select the **Ping Monitoring** check box.

Reference: Some kinds of OSs running on a management server need the firewall exception setting before using **Ping Monitoring** of the alive monitoring. For how to configure the firewall exception setting, see "Adding ICMP Echo Reply to the Exception List of Windows Server 2008 Firewall" in Appendix A, " Network Ports and Protocols" in *SigmaSystemCenter Data Reference Guide*.

8. To monitor whether the TCP Port of the machine activated at the group is connectable or not, select the **Port Monitoring** check box, and enter the port number to monitor in the **Monitoring Port** box.
9. To monitor the virtual machine server activated at the group, select the **Enable VM Server Monitoring** check box.

Note: The **VM Server Monitoring** check box appears only if the model type is the **VM Server**.

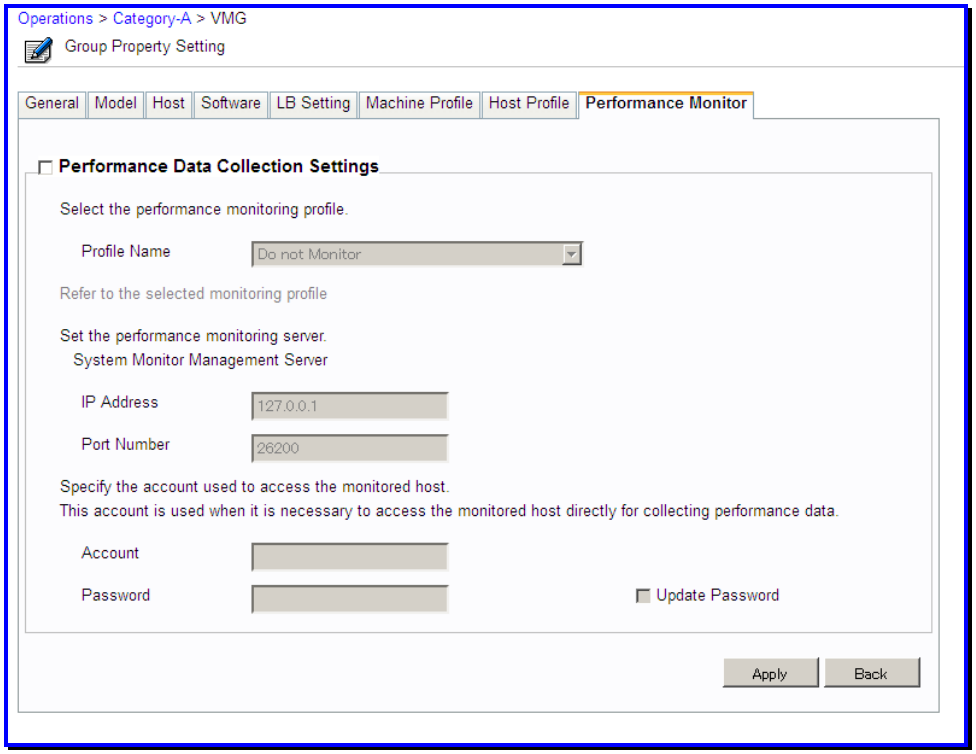
10. Click **Apply**.

5.4.14. Configuring Settings on the Performance Monitor Tab

To configure the setting for collecting the performance data of the host activated at the group by using System Monitor - Performance Monitoring Services, perform the following procedure:

Note: The setting configured on the Performance Monitor tab becomes effective when the SystemProvisioning's configuration information is reflected on System Monitor - Performance Monitoring Services. It might take time depending on the setting of the configuration application.

1. Display the **Group Property Setting** window, and select the **Performance Monitor** tab.



2. To monitor the performance data of the host activated at the group by using System Monitor - Performance Monitoring Services, select the **Performance Data Collection Settings** check box.

3. Select a monitoring profile in the **Profile Name** list. A monitoring profile is a set of performance indicators of System Monitor - Performance Monitoring Services' data collection and threshold monitor settings. The performance indicators, collection intervals for data collection of System Monitor - Performance Monitoring Services and threshold monitor settings can be changed according to which monitoring profile is selected.

Reference: For details of monitoring files, see Appendix A, "Monitoring Profile."

4. Enter the information of System Monitor - Performance Monitoring Services' management server in the **IP Address** box and the **Port Number** box. In the **IP Address** box, specify the IP address of the management server on which the service of System Monitor - Performance Monitoring Services is running. In the **Port Number** box, specify the port number for connecting to the service of System Monitor - Performance Monitoring Services. The default port number is "26200."

Note:

- Ensure that IPv4 address is entered in the **IP Address** box.
- To use System Monitor - Performance Monitoring Services on the SigmaSystemCenter management server machine, specify "127.0.0.1" in IP Address box.
- To monitor a virtual machine on ESX, specify the server where the virtual machine server is monitored as the performance monitoring server.

5. In the **Account** box and the **Password** box, enter the OS account of the host activated at the group. System Monitor - Performance Monitoring Services uses the specified account as the access account for collecting the performance data of the host activated at the group.

Note: If *VM Standard Monitoring Profile* is selected as a monitoring profile, the account and password are optional.

6. Click **Apply**.

5.5. Configuring Model Properties (For a Physical Machine)

This section provides how to configure detail of a model added with the procedure in Subsection 5.4.2, "Configuring Settings on the Model Tab." On the Model Property Setting, you configure the information that depends on the machine type. In this section, the settings if the Model Type is Physical are explained. Follow the procedure in this section.

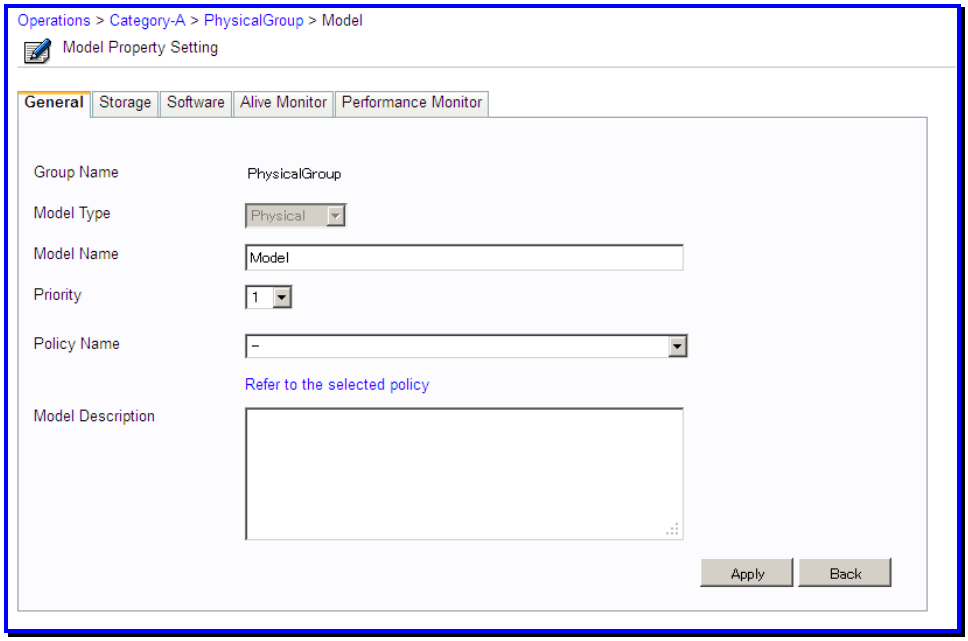
1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to configure in the **Operations** tree.
3. Click **Property** on the Configuration menu.
4. **Group Property Setting** appears on the Main Window. Click the **Model** tab.
5. Click the **Property** of the model to configure Detail Setting under **Model List**.
6. **Model Property Setting** appears on the Main Window.

Configure settings on each tab with the procedure in the following subsections.

5.5.1. Configuring Settings on the General Tab

To configure settings on the General tab of the Model Property Setting, perform the following procedure:

1. Display the **Model Property Setting** on the Main Window, and click the **General** tab.



2. To change the model name, enter the model name in the **Model Name** box. (Required)
3. To change the priority of the model, select the priority in the **Priority** list. Configure the priority of when SystemProvisioning selects a model automatically.

Note: SystemProvisioning selects a model in ascending order of the **Priority** value.

4. To configure a policy to the model, select the policy name in the **Policy Name** list.

Note:

▪ The policy must be prepared before configuring it to the model. For details of a policy, see Section 4.10, "Creating a Policy."

▪ If any policy is not configured on the model, the policy configured on the property of the parent model is used.

5. Click **Apply**.

5.5.2. Configuring Settings on the Storage Tab

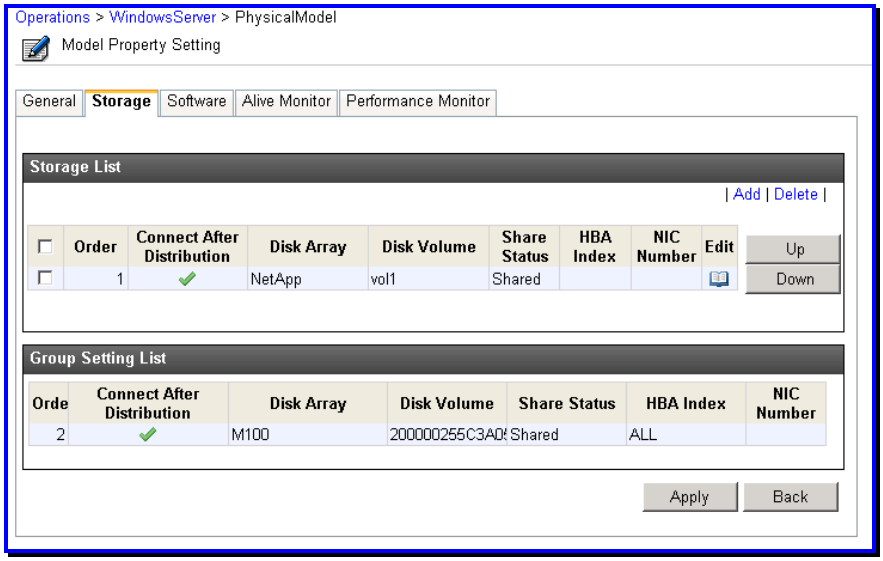
Configure the Storage tab of the Model Property Setting. Storage configured for the model is shared among all hosts working in that model.

The Storage tab is displayed if the model type is set to Physical or VM Server.

To configure settings on the Storage tab, perform the following procedure:

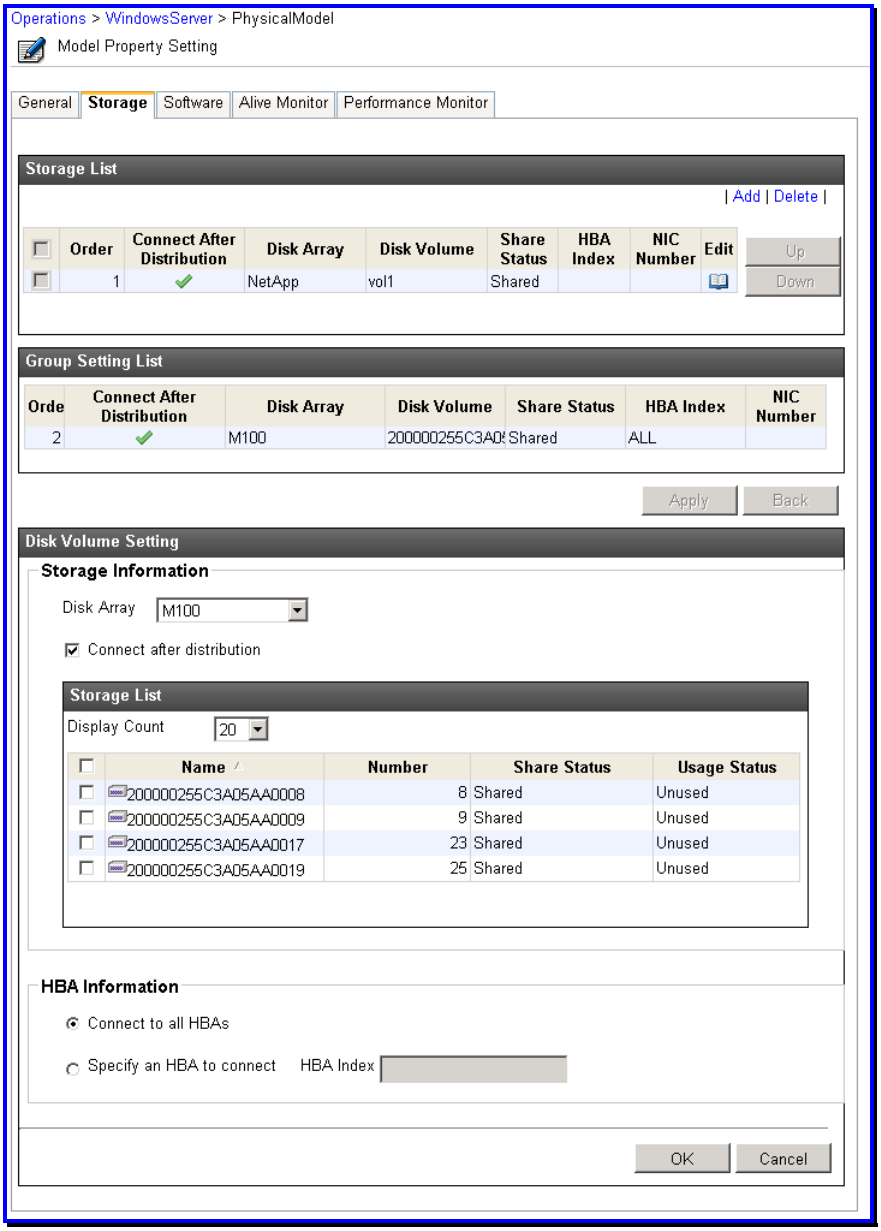
Reference: Set the disk volume for the model to Shared in advance, following the procedure in Subsection 4.6.5, "Configuring a Disk Volume to Shared."

1. Display the **Model Property Setting** window, and select the **Storage** tab.
   The storage configuration applied to the group / model appears.



2. To add disk volume to Storage List, click **Add** of the Action menu on **Storage List**.
3. **Disk Volume Setting** is displayed at the bottom of the screen.
4. Select a disk array from the **Disk Array** list.
   The contents displayed in the lower section differ according to the disk array device which you have selected in the Disk Array list.
5. To hide the data device in order not to be distributed by mistake while distributing software, select the **Connect after distribution** check box.

<For NEC Storage, CLARiiON, Symmetrix >



1. Select the check box of a disk volume to register in the list of disk volumes.
2. To connect the disk volume to configure to all HBAs, select **Connect to all HBAs** under **HBA Information**. To specify the HBA to connect, type the HBA index in the **HBA Index** box. This HBA Index indicates the one that you have configured in Subsection 4.9.3, "Configuring Settings on the Storage Tab."

Note:

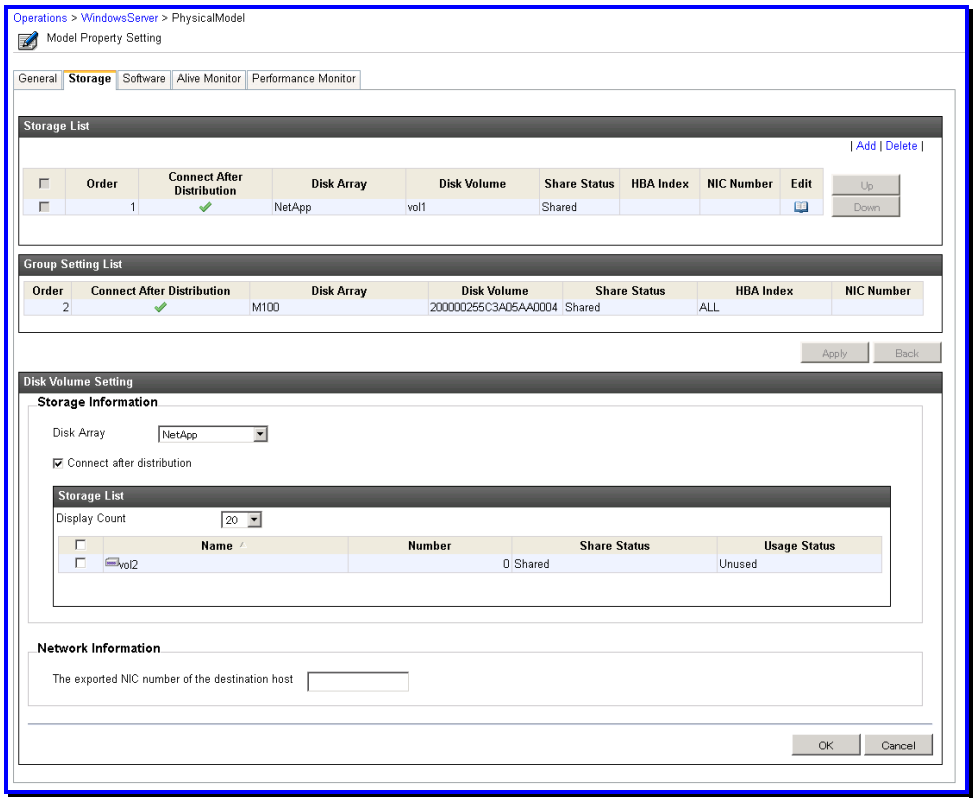
▪ To control storage, both this tab and the Storage tab of the Machine Property Setting must be configured. If either setting is not configured, SystemProvisioning does not control storage. For the settings of the Storage tab of the Machine Property Setting, see Subsection 4.9.3, "Configuring Settings on the Storage Tab."

▪ Note the maximum number of disk volume settings:

▪ For NEC Storage, disk volume settings can be configured up to LD's maximum number that can be assigned to a LD set. Because the LD's maximum number is different according to the models, see the manual of your NEC Storage.

▪ For Symmetrix, disk volume settings can be configured up to the maximum spec of the OS.

< For NetApp >



1. Select the check box of a disk volume to register in the list of disk volumes.
2. To specify the host or IP address of the destination host, type the NIC number in the **The exported NIC number of the destination host** box on the **Network Information** box. Specify the NIC number with the IP address configured in Subsection 5.8.2, "Configuring Settings on the Network Tab." If a single NIC has multiple IP addresses, subsequent IP addresses can be specified by separating those IP addresses with a single-byte slash like "1/2." If you want to expose the disk volume by a host name, set this box to blank.

Note: To control storage, the Network tab of the host and the Machine Property Setting must be configured together. If either setting is not configured, SystemProvisioning does not control storage. When the host name is set up, the setting of name resolution such as DNS settings for the disk array is required so that IP address can be obtained with the host name. For details about the Network tab of the host, see Subsection 5.8.2, "Configuring Settings on the Network Tab." For the Network tab of the Machine Property Setting, see Subsection 4.9.2, "Configuring Settings on the Network Tab."

6. Click **OK**. The disk volume is added to Storage List.
7. Click **Apply**.

5.5.3. Configuring Settings on the Software Tab

To configure settings on the Software tab of the Model Property Setting, perform the following procedure:

1. Display the **Model Property Setting** on the Main Window, and click the **Software** tab.
2. The registered software is listed on the .**Software List.**

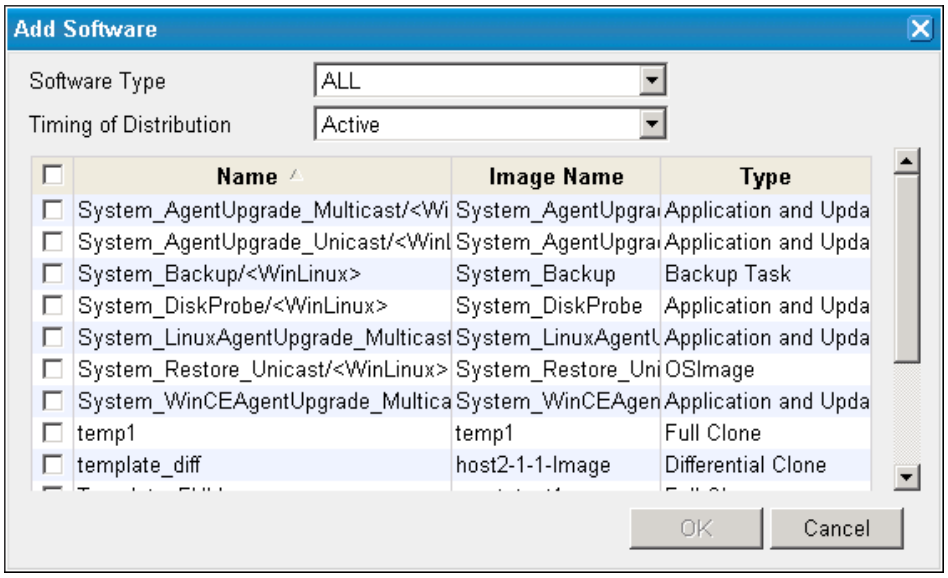
Reference: For the types and the distribution methods of software, see Subsection 1.1.4, "Software Distribution."

3. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.

Note: You cannot change the distribution order across the different distribution timing.

4. To add software to **Software List**, click **Add** of the Action menu under **Software List**.

5. The **Add Software** box is displayed.



6. Select the software type to narrow in the **Software Type** list.
7. Select the timing of distributing software from the **Timing of Distribution** box.
8. Select the check box of the software to distribute under **Add Software**.
9. Click **OK**. The software is added to the **Software List**.
10. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.
11. Click **Apply**.

To change the images, follow the procedure below:

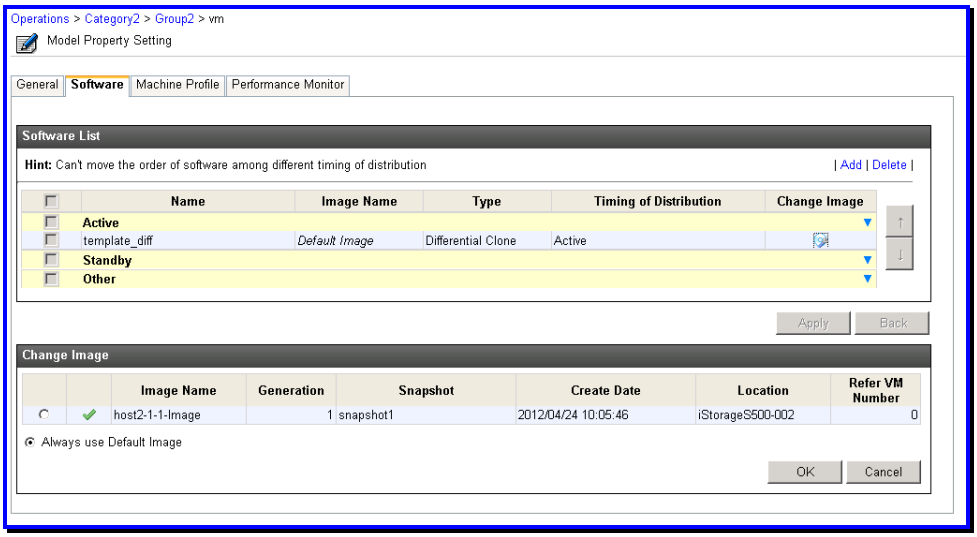
Note:

▪ The images cannot be changed if the model type is Physical or VM Server.

▪ The images can be changed only when the software type is Differential Clone or Disk Clone if the model type is VM.

Reference: For the usage of the images, see Section 2.7, "Image Management (Differential Clone, Disk Clone)" in *SigmaSystemCenter Overview Reference Guide*.

1. Click the **Change Image**.



2. Select the image to configure under **Change Image**. To use the template's default image without fixing, select the **Always use Default Image**.
3. Click **OK**. The images of software under **Software List** change.

5.5.4. Configuring Settings on the Alive Monitor Tab

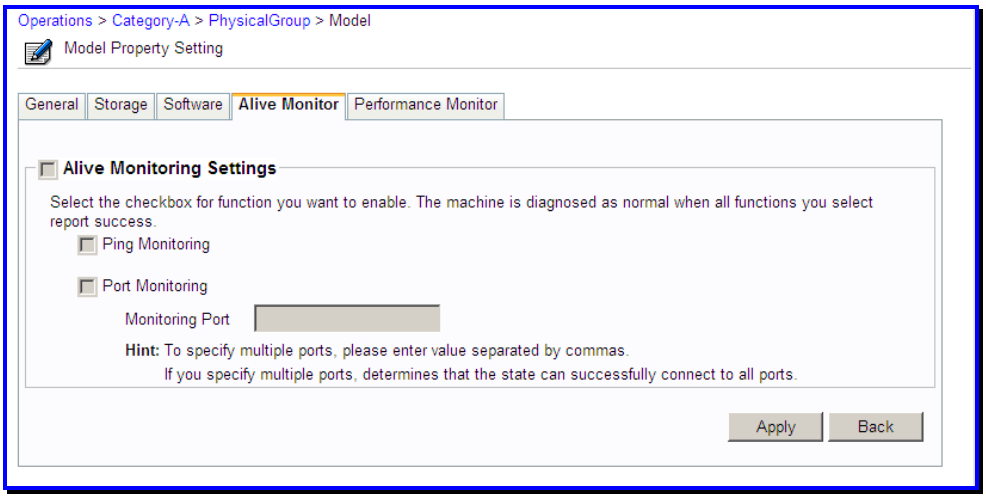
On the Alive Monitor tab of the Model Property Setting, the values configured on the Group Property Seeing can be changed for each model. If some models exist at the group, the settings can be changed so that the alive monitoring won't be executed to a specific model and the monitoring port can be changed. Perform the following procedure:

Note:

▪ This tab can be configured only if the alive monitoring feature is enabled on the Group Property Setting. In addition, if this tab is not configured, the values configured on the Group Property Setting are enabled.

▪ If the check box of the target model, located under Model Type of Monitor Target on the Alive Monitor tab of the Management view, is not selected, the setting information concerning the alive monitoring feature does not appear.

1. Display the **Model Property Setting** on the Main Window, and click the **Alive Monitor** tab.


Operations > Category-A > PhysicalGroup > Model
Model Property Setting
General
Storage
Software
Alive Monitor
Performance Monitor
Alive Monitoring Settings
Select the checkbox for function you want to enable. The machine is diagnosed as normal when all functions you select report success.
Ping Monitoring
Port Monitoring
Monitoring Port
Hint: To specify multiple ports, please enter value separated by commas.
If you specify multiple ports, determines that the state can successfully connect to all ports.
Apply
Back

2. To change the values configured on the Group Property Setting for each model, select the **Alive Monitoring Settings** check box.
3. To monitor the machine activated at the model with Ping, select the **Ping Monitoring** check box.

Reference: Some kinds of OSs running on a management server need the firewall exception setting before using **Ping Monitoring** of the alive monitoring. For how to configure the firewall exception setting, see "Adding ICMP Echo Reply to the Exception List of Windows Server 2008 Firewall" in Appendix A, "Network Ports and Protocols" in *SigmaSystemCenter Data Reference Guide*.

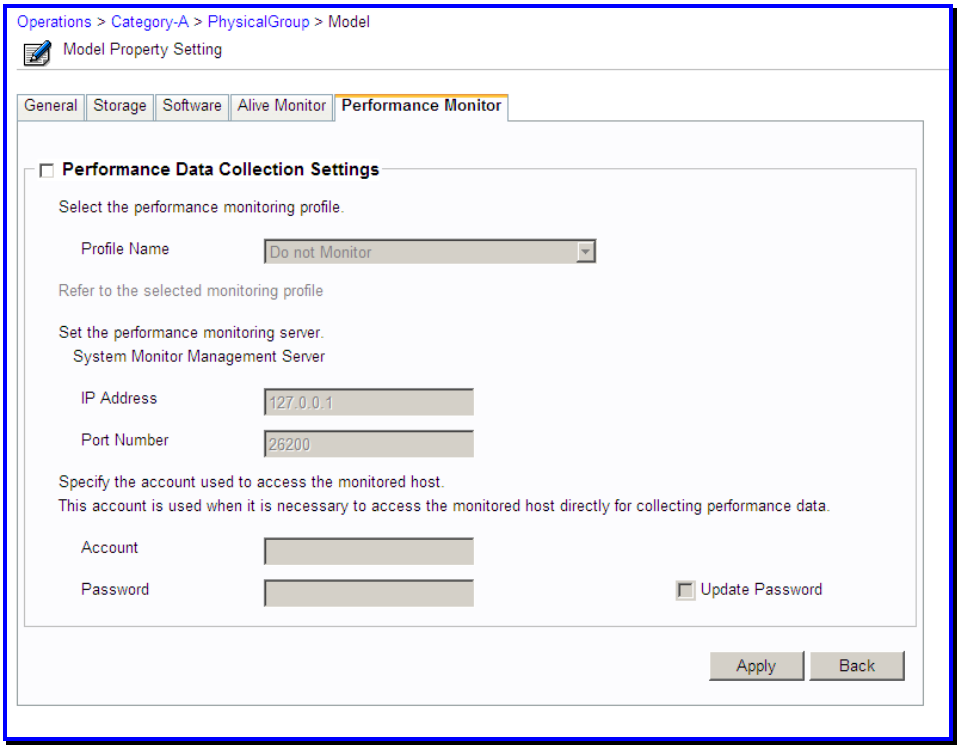
4. To monitor whether the TCP Port of the machine activated at the group is connectable or not, select the **Port Monitoring** check box, and enter the port number to monitor in the **Monitoring Port** box.
5. Click **Apply**.

5.5.5. Configuring Settings on the Performance Monitor Tab

To configure the setting for collecting the performance data of the host activated at the model by using System Monitor - Performance Monitoring Services, perform the following procedure:

Note: The setting configured on the Performance Monitor tab becomes effective when the SystemProvisioning's configuration information is reflected on System Monitor - Performance Monitoring Services. It might take time depending on the setting of the configuration application.

1. Display the **Model Property Setting** on the Main Window, and click the **Performance Monitor** tab.



2. To monitor the performance data of the host activated at the model with System Monitor - Performance Monitoring Services, select the **Performance Data Collection Settings** check box.

3. Select a monitoring profile in the **Profile Name** list. A monitoring profile is a set of performance indicators of System Monitor - Performance Monitoring Services' data collection and threshold monitor settings. The performance indicators, collection intervals for data collection of System Monitor - Performance Monitoring Services and threshold monitor settings for data collection can be changed according to which monitoring profile is selected.

Reference: For details of monitoring files, see Appendix A, "Monitoring Profile."

4. Enter the information of System Monitor - Performance Monitoring Services' management server in the **IP Address** box and the **Port Number** box. In the **IP Address** box, specify the IP address of the management server on which the service of System Monitor - Performance Monitoring Services is running. In the **Port Number** box, specify the port number for connecting to the service of System Monitor - Performance Monitoring Services. The default port number is "26200."

Note:

▪ Ensure that IPv4 address is entered in the **IP Address** box.

▪ To use System Monitor - Performance Monitoring Services on the SigmaSystemCenter management server machine, specify "127.0.0.1" in IP Address box.

5. In the **Account** box and the **Password** box, enter the OS account of the host activated at the model. System Monitor - Performance Monitoring Services uses the specified account as the access account for collecting the performance data of the host activated at the model.
6. Click **Apply**.

5.6. Configuring Model Properties (For a Virtual Machine)

This section provides how to configure detail of a model added with the procedure in Subsection 5.4.2, "Configuring Settings on the Model Tab." On the Model Property Setting, you configure the information that depends on the machine type. In this section, the settings if the Model Type is VM are explained. Follow the procedure in this section.

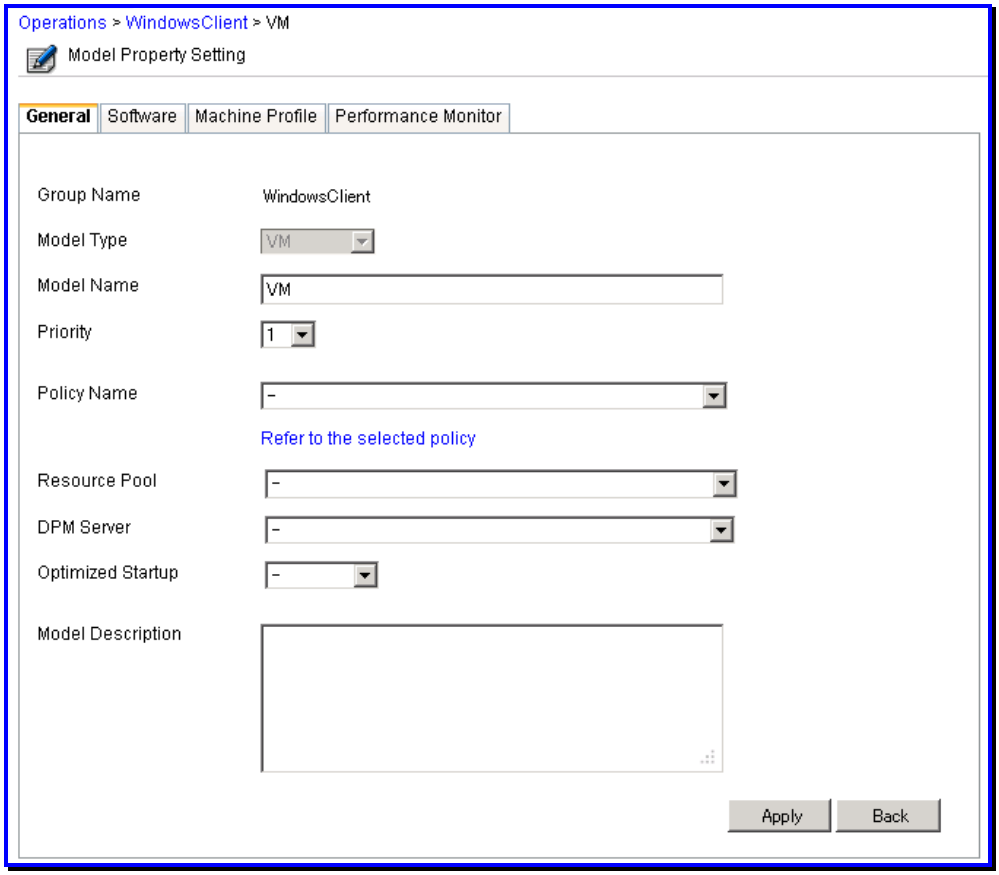
1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to configure in the **Operations** tree.
3. Click **Property** on the Configuration menu.
4. **Group Property Setting** appears on the Main Window. Click the **Model** tab.
5. Click the **Property** of the model to configure Detail Setting under **Model List**.
6. **Model Property Setting** appears on the Main Window.

Configure settings on each tab with the procedure in the following subsections.

5.6.1. Configuring Settings on the General Tab

To configure settings on the General tab of the Model Property Setting, perform the following procedure:

1. Display the **Model Property Setting** window, and click the **General** tab.



2. To change the model name, enter the model name in the **Model Name** box. (Required)
3. To change the priority of the model, select the priority in the **Priority** list. Configure the priority of when SystemProvisioning selects a model automatically.

Note: SystemProvisioning selects a model in ascending order of the **Priority** value.

4. To configure a policy to the model, select the policy name in the **Policy Name** list.

Note:

▪ The policy must be prepared before configuring it to the model. For details of a policy, see Section 4.10, "Creating a Policy."

▪ If any policy is not configured on the model, the policy configured on the parent group's property is used.

5. To correlate a VM model and a resource pool, select the resource pool in the **Resource Pool** list. If a resource pool is specified, SystemProvisioning selects a virtual machine server to create a virtual machine from virtual machine servers under the specified resource pool.

Note: If any resource pool is not specified, SystemProvisioning selects a virtual machine server from the virtual machine servers configured on the template specified on the Software tab.

6. To register a virtual machine to be activated to DPM, select the **DPM Server** in the **DPM Server** list.

Note: This setting is necessary for executing Create and Assign Machine or Allocate Machine to virtual machines of XenServer, Standalone ESXi, Hyper-V and KVM. This setting also can be configured on a Category or a Group.

7. To enable the Optimized Startup Function, select the **Enable** in the **Optimized Startup** list. If you enable this here, SystemProvisioning selects a virtual machine server as a new host in situations where virtual machines on the virtual machine server now used as the host cannot be started. If you specify a resource pool in the **Resource Pool** list, SystemProvisioning selects a target virtual machine server to start a virtual machine from the virtual machine servers under the specified resource pool.

Note: If any resource pool is not specified, SystemProvisioning selects a target virtual machine server from the virtual machine servers under the datacenter to which the virtual machines belongs.

8. Click **Apply**.

5.6.2. Configuring Settings on the Software Tab

To configure settings on the Software tab of the Model Property Setting, perform the procedure in Subsection 5.5.3, "Configuring Settings on the Software Tab."

5.6.3. Configuring Settings on the Machine Profile Tab

The Machine Profile tab is used for configuring the devices that are to be assigned to newly created virtual machines. The Machine Profile definition is used when executing the Create and Assign Machine and the Reconfigure.

The Machine Profile definition on the Model Property Setting is used when each Machine Profile for hosts is not configured on the Host setting. The Machine Profile definition that is selected when creating a virtual machine is used.

In addition, the Machine Profile setting of a specified model can be used as the default value for the Group Property Setting and the Host Setting.

The default value of the Machine Profile tab on the Model Property Setting is the configured value of the upper group or that of the template. The group setting has priority if both the group and the template are configured.

To configure the Machine Profile tab, see Subsection 5.4.8, "Configuring Settings on the Machine Profile Tab (if the Model Type is VM)."

5.6.4. Configuring Settings on the Alive Monitor Tab

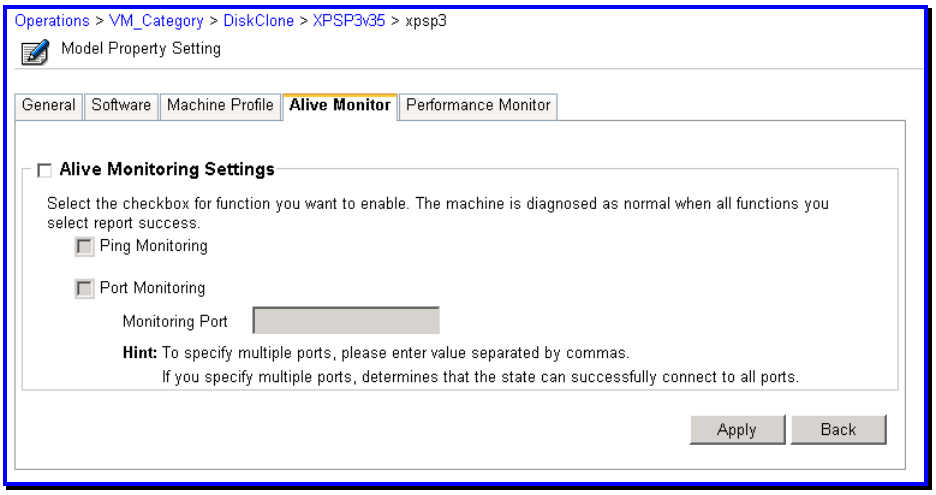
On the Alive Monitor tab of the Model Property Setting, the values configured on the Group Property Seeing can be changed for each model. If some models exist at the group, the settings can be changed so that the alive monitoring won't be executed to a specific model and the monitoring port can be changed. Perform the following procedure:

Note:

▪ This tab can be configured only if the alive monitoring feature is enabled on the Group Property Setting. In addition, if this tab is not configured, the values configured on the Group Property Setting are enabled.

▪ If the check box of the target model, located under Model Type of Monitor Target on the Alive Monitor tab of the Management view, is cleared, the setting information concerning the alive monitoring feature does not appear.

1. Display the **Model Property Setting** on the Main Window, and click the **Alive Monitor** tab.


Operations > VM_Category > DiskClone > XPSP3v35 > xpsp3
Model Property Setting
General
Software
Machine Profile
Alive Monitor
Performance Monitor
Alive Monitoring Settings
Select the checkbox for function you want to enable. The machine is diagnosed as normal when all functions you select report success.
Ping Monitoring
Port Monitoring
Monitoring Port
Hint: To specify multiple ports, please enter value separated by commas.
If you specify multiple ports, determines that the state can successfully connect to all ports.
Apply
Back

2. To change the values configured on the Group Property Setting for each model, select the **Alive Monitoring Settings** check box.
3. To monitor the machine activated at the model with Ping, select the **Ping Monitoring** check box.

Reference: Some kinds of OSs running on a management server need the firewall exception setting before using **Ping Monitoring** of the alive monitoring. For how to configure the firewall exception setting, see Appendix A, "Adding ICMP Echo Reply to the Exception List of Windows Server 2008 Firewall" in *SigmaSystemCenter Data Reference Guide*.

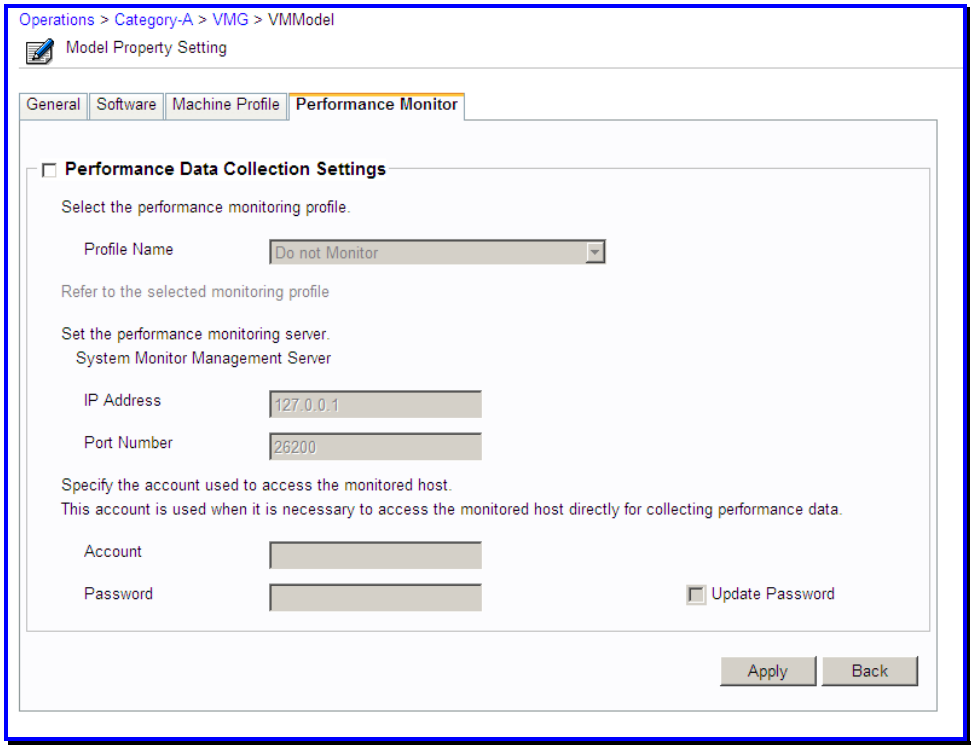
4. To monitor whether the TCP Port of the machine activated at the model is connectable or not, select the **Port Monitoring** check box, and enter the port number to monitor in the **Monitoring Port** box.
5. Click **Apply**.

5.6.5. Configuring Settings on the Performance Monitor tab

To configure the setting for collecting the performance data of the host activated at the model by using System Monitor - Performance Monitoring Services, perform the following procedure:

Note: The setting configured on the Performance Monitor tab becomes effective when the SystemProvisioning's configuration information is reflected on System Monitor - Performance Monitoring Services. It might take time depending on the setting of the configuration application.

1. Display the **Model Property Setting** on the Main Window, and click the **Performance Monitor** tab.



2. To monitor the performance data of the host activated at the model with System Monitor - Performance Monitoring Services, select the **Performance Data Collection Settings** check box.
3. Select a monitoring profile in the **Profile Name** list. A monitoring profile is a set of performance indicators of System Monitor - Performance Monitoring Services' data collection and threshold monitor settings. The performance indicators and collection intervals for data collection of System Monitor - Performance Monitoring Services and threshold monitor settings can be changed according to which monitoring profile is selected.

Reference: For details of monitoring files, see Appendix A, "Monitoring Profile."

4. Enter the information of System Monitor - Performance Monitoring Services' management server in the **IP Address** box and the **Port Number** box. In the **IP Address** box, specify the IP address of the management server on which the service of System Monitor - Performance Monitoring Services is running. In the **Port Number** box, specify the port number for connecting to the service of System Monitor - Performance Monitoring Services. The default port number is "26200."

Note:

- Ensure that IPv4 address is entered in the **IP Address** box.
- To use System Monitor - Performance Monitoring Services on the SigmaSystemCenter management server machine, specify "127.0.0.1" in IP Address box.
- To monitor a virtual machine on ESX, specify the server where the virtual machine server is monitored as the performance monitoring server.

5. In the **Account** box and the **Password** box, enter the OS account of the host activated at the model. System Monitor - Performance Monitoring Services uses the specified account as the access account for collecting the performance data of the host activated at the model.

Note: If *VM Standard Monitoring Profile* is selected as a monitoring profile, the account and password are optional.

6. Click **Apply**.

5.7. Configuring Model Properties (For a Virtual Machine Server)

This section provides how to configure detail of a model added with the procedure in Subsection 5.4.2, "Configuring Settings on the Model Tab." On the Model Property Setting, you configure the information that depends on the machine type. In this section, the settings if the Model Type is VM Server are explained. Follow the procedure in this section.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to configure in the **Operations** tree.
3. Click **Property** on the Configuration menu.
4. **Group Property Setting** appears on the Main Window. Click the **Model** tab.
5. Click the **Property** of the model to configure Detail Setting under **Model List**.
6. **Model Property Setting** appears on the Main Window.

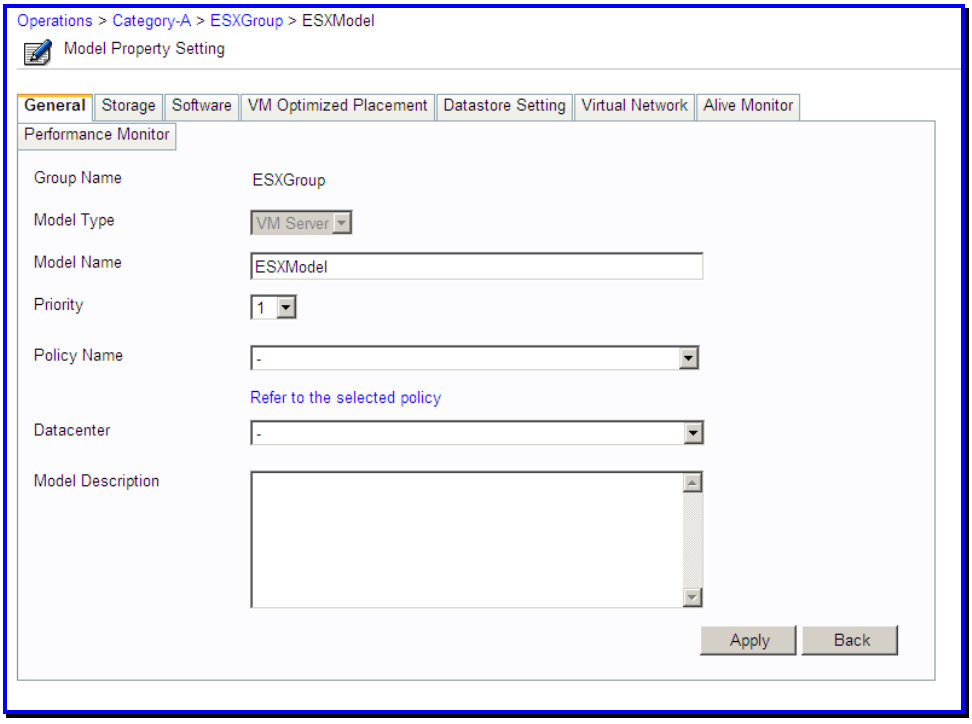
Configure settings on each tab with the procedure in the following subsections.

5.7.1. Configuring Settings on the General Tab

To configure settings on the General tab of the Model Property Setting, perform the following procedure:

Note: If the datacenter to be configured to the model is not configured properly, you cannot add the virtual machine server to the group. In addition, if the datacenter is not configured in the environment for managing ESXi, start of the virtual machine server may fail after executing Allocate Resource, Replace Machine, and Change Machine Usage.

1. Display the **Model Property Setting** window, and click the **General** tab.



2. To change the model name, enter the model name in the **Model Name** box. (Required)
3. To change the priority of the model, select the priority in the **Priority** list. Configure the priority of when SystemProvisioning selects a model automatically.

Note: SystemProvisioning selects a model in ascending order of the **Priority** value.

4. To configure a policy to the model, select the policy name in the **Policy Name** list.

Note:

▪ The policy must be prepared before configuring it to the model. For details of a policy, see Section 4.10, "Creating a Policy."

▪ If any policy is not configured on the model, the policy configured on the parent group's property will be used.

5. Select the datacenter to be used by model in the **Datacenter** list.
6. Click **Apply**.

5.7.2. Configuring Settings on the Storage Tab

Configure the Storage tab of the Model Property Setting, referring to the procedure in Subsection 5.5.2, "Configuring Settings on the Storage Tab."

5.7.3. Configuring Settings on the Software Tab

To configure settings on the Software tab of the Model Property Setting, perform the procedure in Subsection 5.5.3, "Configuring Settings on the Software Tab."

5.7.4. Configuring Settings on the VM Optimized Placement Tab

Configure the VM Optimized Placement tab of the Model Property Setting. If you do not use the VM Optimized Placement feature, clear the Enable Load Monitoring (Load Balancing and Power Saving) check box. To use it, configure the setting, referring to the Section 6.3, "Configuring to Use the VM Optimized Placement ."

For the details of the VM Optimized Placement tab, see Subsection 6.3.2, "Configuring the VM Server Model."

5.7.5. Configuring Settings on the Datastore Tab

Configure the Datastore tab of the Model Property Setting.

For the details of the Datastore tab, see Subsection 5.4.12, "Configuring Settings on the Datastore Tab."

5.7.6. Configuring Settings on the Virtual Network Tab

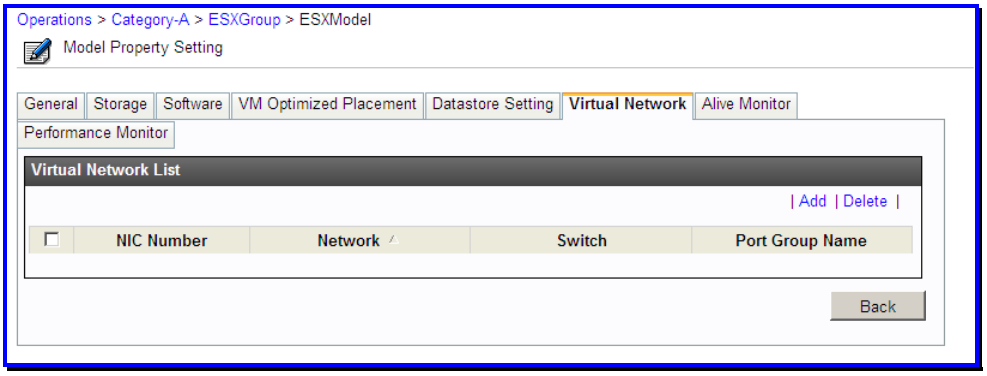
On the Virtual Network tab of the Model Property Setting, configure a network that is available for virtual machines while the virtual machine server is being activated.

- Configuration of virtual switches and port groups in the virtual machine server (except Xen Server)

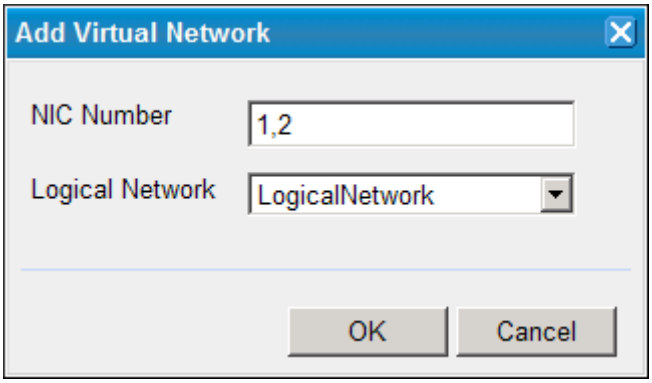
- Control of distributed virtual switches managed by vCenter Server

Note: VLAN (port group) which exists in the virtual switch connected to a specified NIC number is kept (except Change Configuration.)

1. Display the **Model Property Setting** window, and click the **Virtual Network** tab.



2. Click the **Add** of the Action menu.
3. **Add Virtual Network** dialog box appears.



4. Enter a NIC number in the **NIC Number** box. To enter multiple NIC numbers, separate them with a comma (",").

Note: To configure the virtual network, the NIC number must be configured to the activated machines. For details, see 4.9.2, "Configuring Settings on the Network Tab."

5. Select the network in the **Logical Network** list.

Reference: For details of network definition, see Subsection 4.4.6, "Adding a Logical Network."

Note: If both the network setting of the group and the virtual network setting of the model, the latter has priority.

6. Click **OK**. The virtual network is added under **Virtual Network List**.
7. Click **Back** to display details of the group on the Main Window.

5.7.7. Configuring Settings on the Alive Monitor Tab

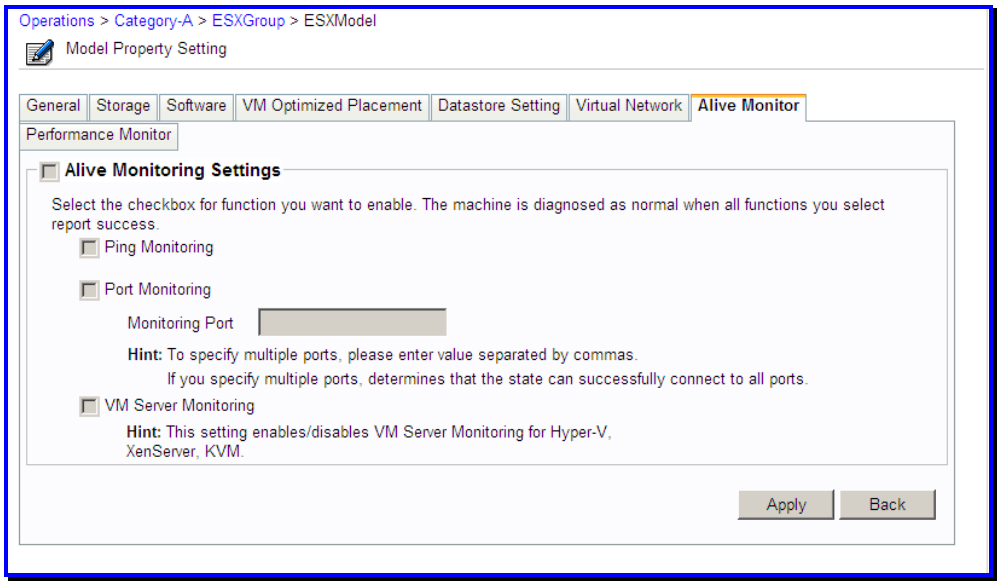
On the Alive Monitor tab of the Model Property Setting, the values configured on the Group Property Seeing can be changed for each model. If some models exist at the group, the settings can be changed so that the alive monitoring won't be executed to a specific model, or the monitoring port can be changed. Perform the following procedure:

Note:

▪ This tab can be configured only if the alive monitoring feature is enabled on the Group Property Setting. In addition, if this tab is not configured, the values configured on the Group Property Setting are enabled.

▪ If the check box of the target model, located under Model Type of Monitor Target on the Alive Monitor tab of the Management view, is cleared, the setting information concerning the alive monitoring feature does not appear.

1. Display the **Model Property Setting** on the Main Window, and click the **Alive Monitor** tab.


Operations > Category-A > ESXGroup > ESXModel
Model Property Setting
General
Storage
Software
VM Optimized Placement
Datastore Setting
Virtual Network
Alive Monitor
Performance Monitor
Alive Monitoring Settings
Select the checkbox for function you want to enable. The machine is diagnosed as normal when all functions you select report success.
Ping Monitoring
Port Monitoring
Monitoring Port
Hint: To specify multiple ports, please enter value separated by commas.
If you specify multiple ports, determines that the state can successfully connect to all ports.
VM Server Monitoring
Hint: This setting enables/disables VM Server Monitoring for Hyper-V, XenServer, KVM.
Apply
Back

2. To change the values configured on the Group Property Setting for each model, select the **Alive Monitoring Settings** check box.

3. To monitor the machine activated at the model with Ping, select the **Ping Monitoring** check box.

Reference: Some kinds of OSs running on a management server need the firewall exception setting before using **Ping Monitoring** of the alive monitoring. For how to configure the firewall exception setting, see "Adding ICMP Echo Reply to the Exception List of Windows Server 2008 Firewall" in Appendix A, "Network Ports and Protocols" in *SigmaSystemCenter Data Reference Guide*.

4. To monitor whether the TCP Port of the machine activated at the model is connectable or not, select the **Port Monitoring** check box, and enter the port number to monitor in the **Monitoring Port** box.
5. To monitor the virtual machine server activated at the model, select the **VM Server Monitoring** check box.
6. Click **Apply**.

5.7.8. Configuring Settings on the Performance Monitor tab

This tab is for configuring the setting to collect the performance data of the host activated at the model with System Monitor - Performance Monitoring Services.

To configure the settings on the Performance Monitor tab of the Model Property Setting, see Subsection 5.5.5, "Configuring Settings on the Performance Monitor Tab."

5.8. Configuring the Host Setting

This section explains how to configure detail of a model added with the procedure in Subsection 5.4.3, "Configuring Settings on the Host Tab." Follow the procedure in this section.

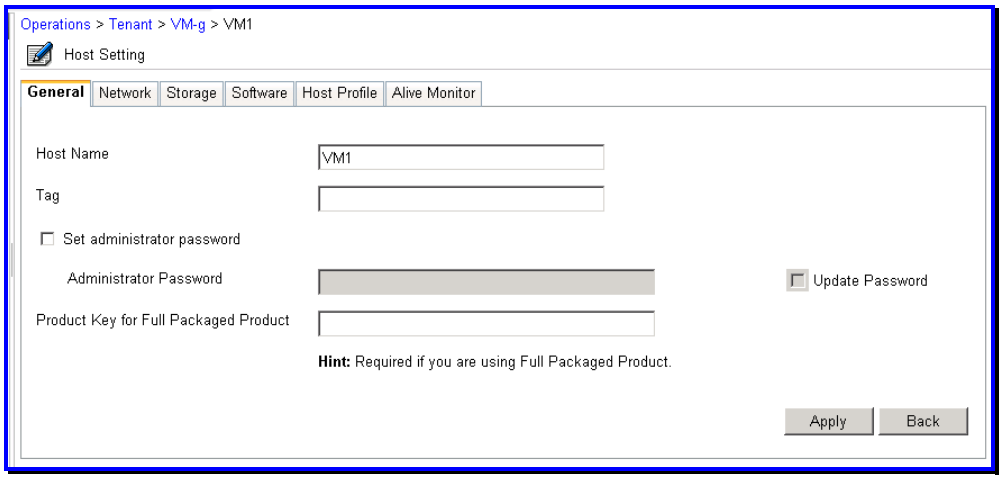
1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to configure in the **Operations** tree.
3. Click **Property** on the Configuration menu.
4. **Group Property Setting** appears on the Main Window. Click the **Host** tab.
5. Click the **Property** of the host to configure under **Host List**.
6. **Host Setting** appears on the Main Window.

Configure settings on each tab with the procedure in the following subsections.

5.8.1. Configuring Settings on the General Tab

To configure settings on the General tab of the Host Setting, perform the following procedure:

1. Display the **Host Setting** window, and click the **General** tab.



2. To change the host name, enter the host name in the **Host Name** box. (Required)
3. Type the tag (key word) in the **Tag** box.

4. Select the **Set administrator password** check box to set the administrator password. If the model type is **Physical**, the **Administrator Password** box appears. If the model type is **VM Server**, the **Root Password** box appears. Type a new password in the displayed text box. If you want to change the administrator password, select the **Update Password** check box, and then type the new password in the **Administrator Password** box.
5. Type the product key in the **Product Key for Full Packaged Product** box.
6. Click **Apply**.

5.8.2. Configuring Settings on the Network Tab

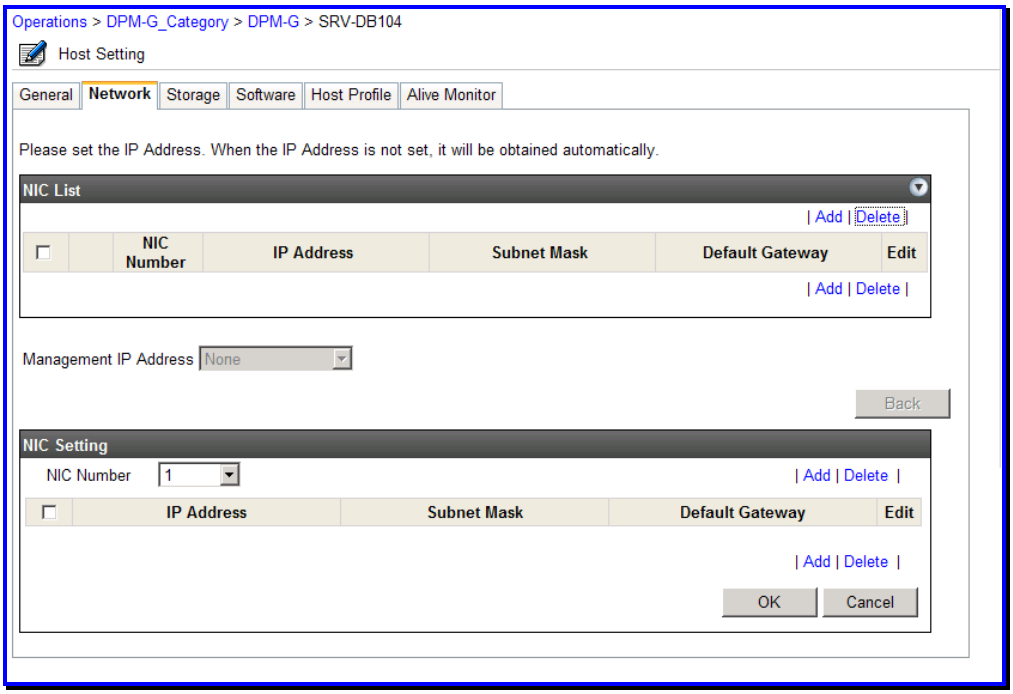
To configure settings on the Network tab of the Host Setting, perform the following procedure:

Note:

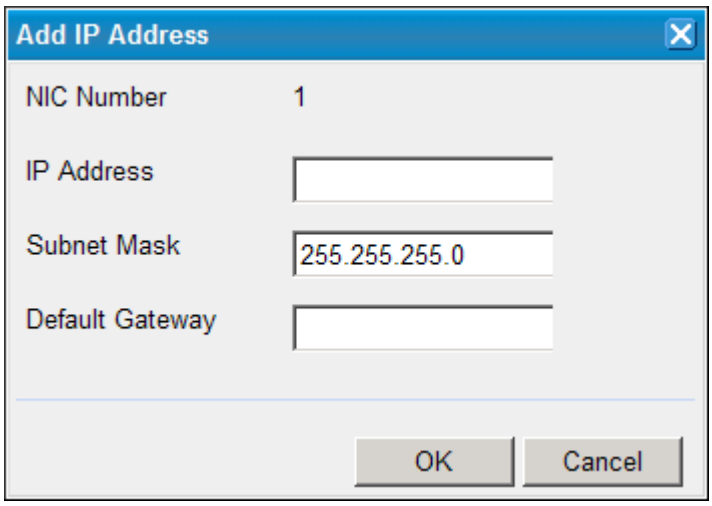
▪ If the auto-generating of IP address is configured on a logical network, this tab does not have to be configured. If this tab is configured, this tab's setting has priority.

▪ If you use the customization of DPM, you can set up to eight NICs for Windows Vista or later; maximum four NICs for Windows 2000, Windows Server 2003 or Windows XP; maximum seven NICs for Linux OS.

1. Display the **Host Setting** window, and click the **Network** tab.
2. To add an NIC, click **Add** of the Action menu on the **NIC List**.
3. **NIC Setting** is displayed below the **NIC List**.



4. If you intend to add NIC settings, select the NIC number from the **NIC Number** list, and then click **Add** on the **Action** menu.
5. The **Add IP Address** box appears.



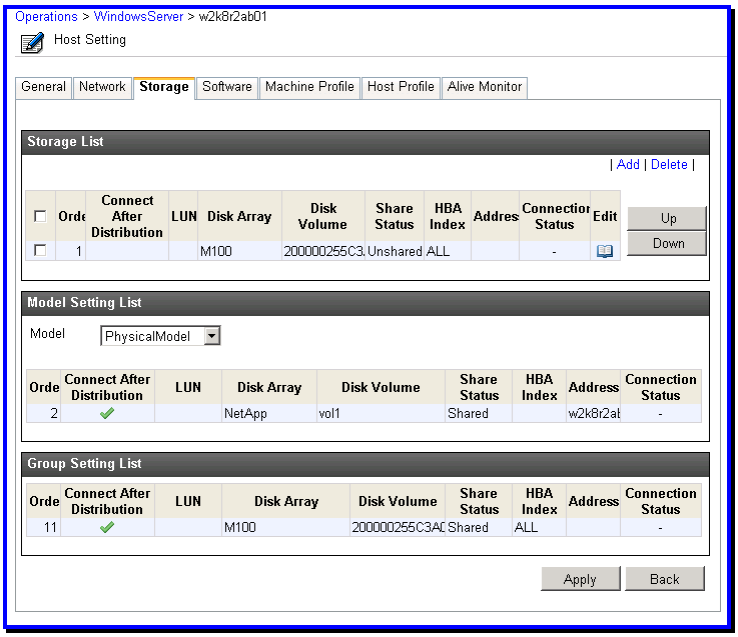
   1. Enter the IP address in the **IP Address** box.
   2. Enter the subnet mask in the **Subnet Mask** box.
   3. Enter the default gateway in the **Default Gateway** box.
   4. Click **OK**. The IP address is added to the **NIC Setting**.
6. Click OK then the IP address information is added to the **NIC List**.
7. In the following cases, select the management IP address in the **Management IP Address** list.
   - To monitor a physical machine with NEC ESMPRO Agent
   - To execute performance monitoring towards a managed machine using an IP address with System Monitor - Performance Monitoring Services
   - To execute alive monitoring towards a managed machine with SystemProvisioning
8. Click **Back**.

5.8.3. Configuring Settings on the Storage Tab (if the Model Type is Physical or VM Server)

If the model type is Physical or VM Server, this tab appears.

To configure settings on the Storage tab of the Host Setting, perform the following procedure:

1. Display the **Host Setting** window, and click the **Storage** tab.
   The storage configuration, which is applied to the group, model or host, appears.



On the Storage tab, you can check the disk volume connection.
(This is not available for Symmetrix.)
The following table describes the status icons and their meaning.

Status	Description
—	The machine is not connected to the host.
	For NEC Storage and CLARiiON: The disk volume is connected to the host and its defined LUN matches its actual LUN. Or the disk volume is connected to the host and the LUN configuration is omitted. For MasterScope Network Manager: The disk volume is connected to the host and its defined IP address matches its actual IP address.
	The undefined disk volume is connected to the host.
	For NEC Storage and CLARiiON: The defined LUN does not match its actual LUN, or the defined disk volume is not connected to the host. For NetApp: The defined IP address does not match its actual IP address, or the defined disk volume is not connected to the host.

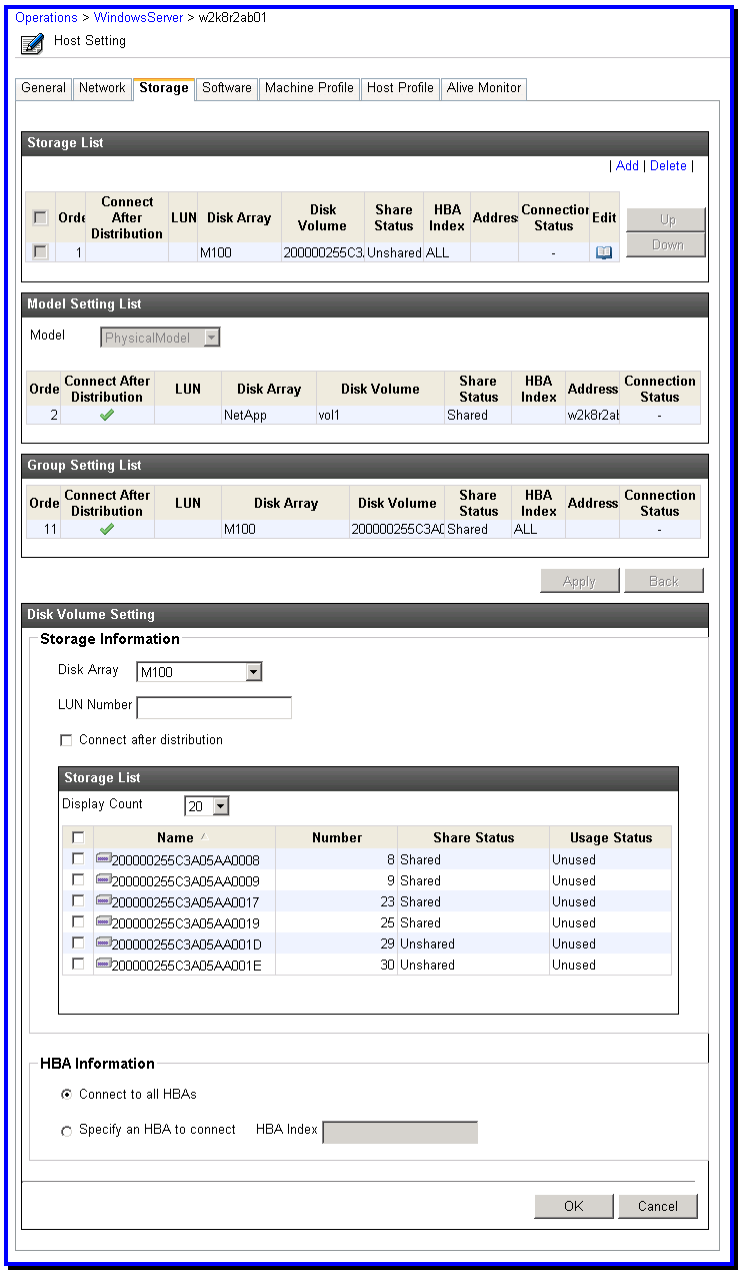
2. To add disk volume to **Storage List**, click **Add** of the Action menu on **Storage List**.
3. **Disk Volume Setting** is displayed at the bottom of the screen.
4. Select a disk array from the **Disk Array** list.
   The contents displayed in the lower section differ according to the disk array device which you have selected in the **Disk Array** list.

5. Type the LUN in the **LUN Number** box. If the LUN Number box remains blank, LUN is automatically numbered.

Note: For Symmetrix and NetApp, the LUN box cannot be entered.

6. To hide the data device in order not to be distributed by mistake while distributing software, select the **Connect after distribution** check box.

<For NEC Storage, CLARiiON, Symmetrix >



1. Select the check box of a disk volume to register in the list of disk volumes.
2. To connect the disk volume to configure to all HBAs, select **Connect to all HBAs** under **HBA Information**. To specify the HBA to connect, enter the HBA index in the **HBA Index** box. This HBA Index indicates the one that you have configured in Subsection 4.9.3, "Configuring Settings on the Storage Tab."

Note:

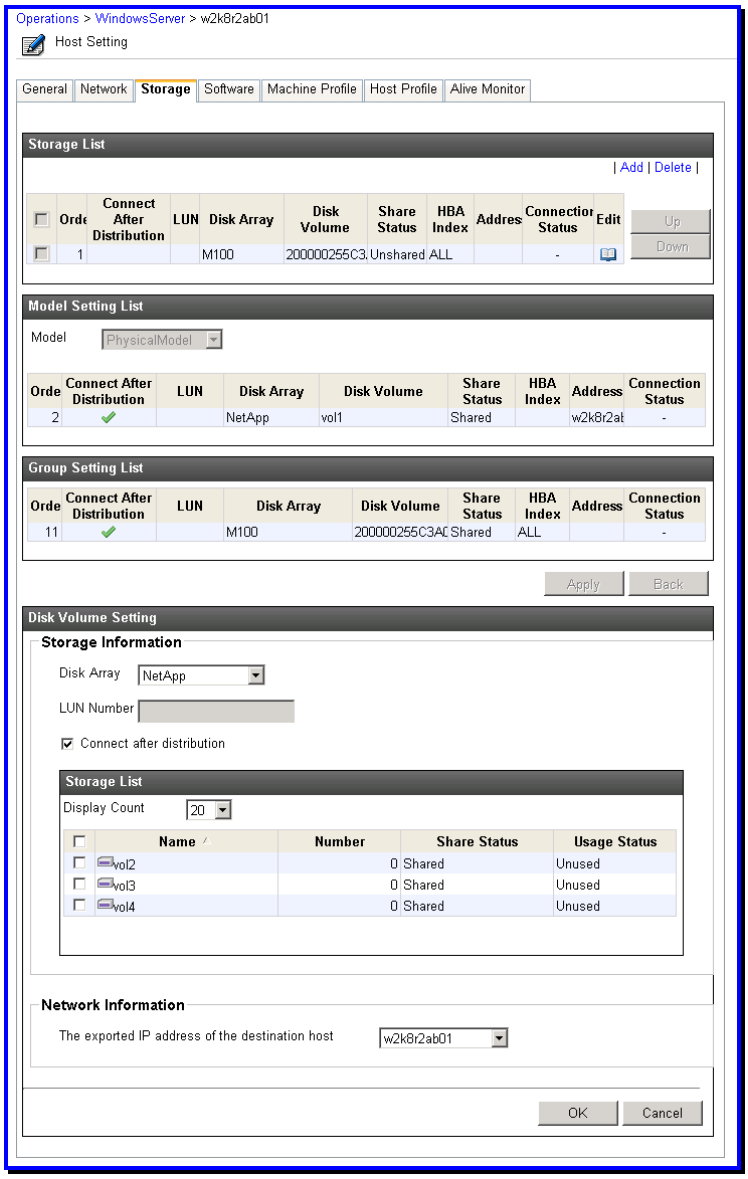
▪ To control storage, both this tab and the Storage tab of the Machine Property Setting must be configured. If either setting is not configured, SystemProvisioning does not control storage. For the settings of the Storage tab of the Machine Property Setting, see Subsection 4.9.3, "Configuring Settings on the Storage Tab."

▪ Note the maximum number of disk volume settings:

▪ For NEC Storage, disk volume settings can be configured up to LD's maximum number that can be assigned to a LD set. Because the LD's maximum number is different according to the models, see the manual of your NEC Storage.

▪ For Symmetrix, disk volume settings can be configured up to the maximum spec of the OS.

< For NetApp >



1. Select the check box of a disk volume to register in the list of disk volumes.
2. To specify the host or IP address of the destination host, select the published host from the **The exported IP address of the destination host** list on the **Network Information** box.

Note: To control storage, the Network tab of the host and the Machine Property Setting must be configured together. If either setting is not configured, SystemProvisioning does not control storage. When the host name is set up, the setting of name resolution such as DNS settings for the disk array is required so that IP address can be obtained with the host name. For details about the Network tab of the host, see Subsection 5.8.2, "Configuring Settings on the Network Tab." For the Network tab of the Machine Property Setting, see Subsection 4.9.2, "Configuring Settings on the Network Tab."

7. Click **OK**. The disk volume is added to **Storage List**.
8. Click **Apply**.

5.8.4. Configuring Settings on the Software Tab

To configure settings on the Software tab of the Host Setting, perform the following procedure:

1. Display the **Host Setting** window, and click the **Software** tab.
2. The registered software is listed on the **Software List**.

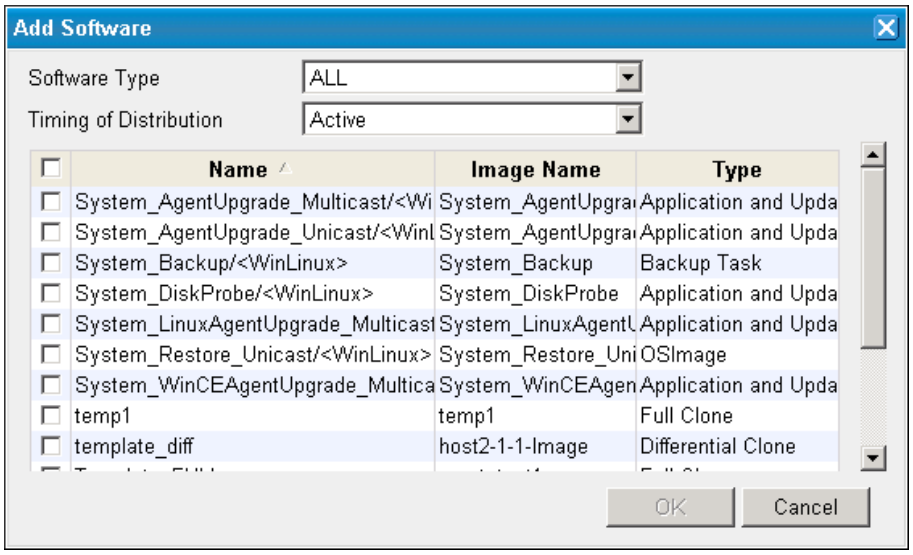
Reference: For the types and the distribution methods of software, see Subsection 1.1.4, "Software Distribution."

3. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.

Note: You cannot change the distribution order across the different distribution timing.

4. To add software in **Software List**, click **Add** of the Action menu under **Software List**.

5. The **Add Software** box is displayed.



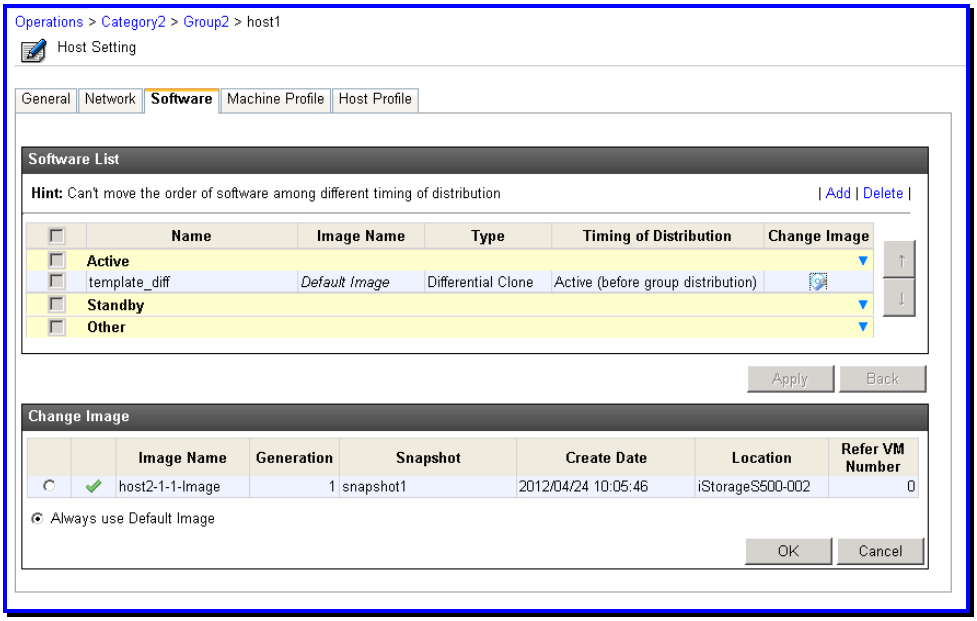
6. Select the software type in the **Software Type** list to narrow down.
7. Select the timing of distributing software from the **Timing of Distribution** box.
8. Select the check box of the software to distribute under **Add Software**.
9. Click **OK**. The software is added to the **Software List**.
10. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.
11. Click **Apply**.

To change the images, follow the procedure below:

Note: The images can be changed only when the software type is Differential Clone or Disk Clone.

Reference: For the usage of the images, see Section 2.7, "Image Management (Differential Clone, Disk Clone)" in *SigmaSystemCenter Overview Reference Guide*.

1. Click the **Change Image**.

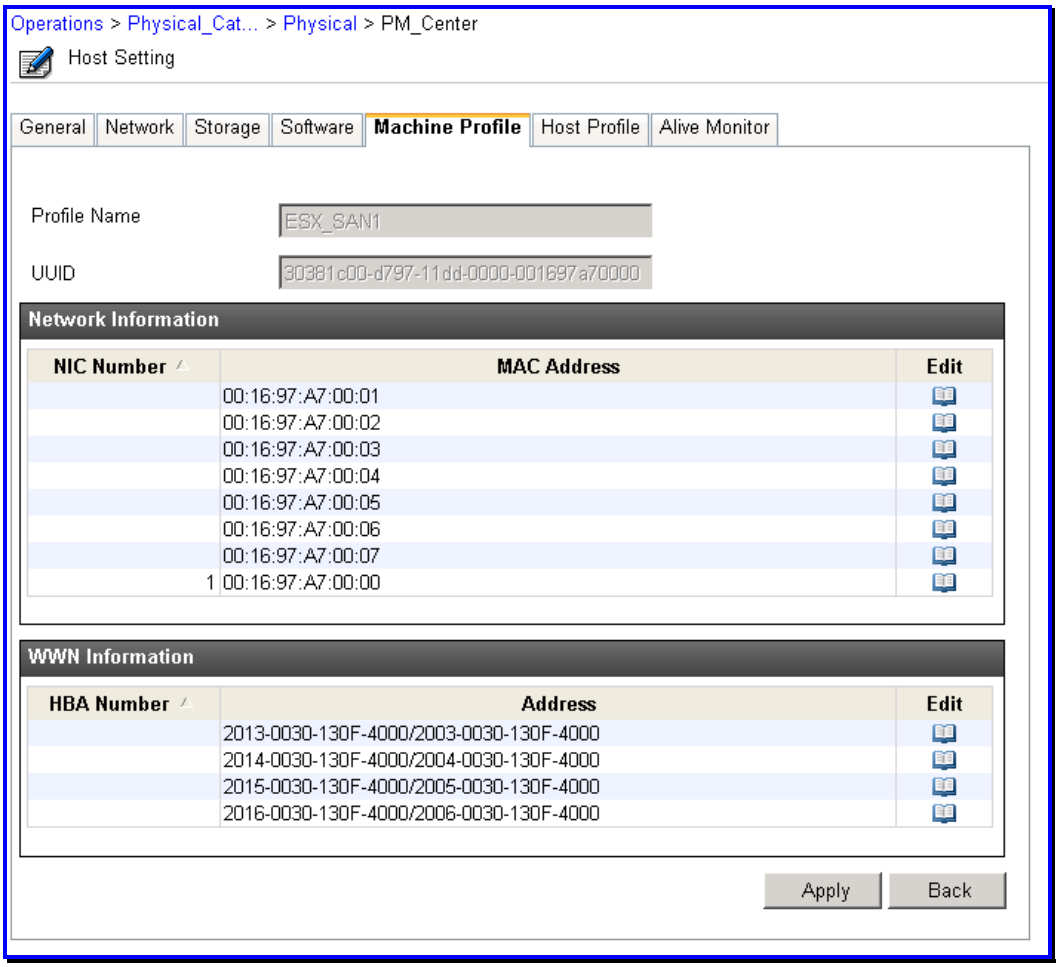


2. Select the check box of the image to distribute under **Change Image**. When using the template's default image without fixing, select the **Always use Default Image**.
3. Click **OK**. The images of software under **Software List** change.

5.8.5. Configuring Settings on the Machine Profile Tab (if the Model Type is Physical or VM Server)

Configure the Machine Profile tab of the Host Setting.

If you are not operating with logical machines, the machine profile setting on this window is unnecessary.



5.8.6. Configuring Settings on the Machine Profile Tab (if the Model Type is VM)

The Machine Profile tab is used for configuring the devices that are to be assigned to newly created virtual machines. The Machine Profile definition is used when executing the Create and Assign Machine and the Reconfigure.

In addition, the Machine Profile setting of a specified model can be used as the default value for the Host Setting.

Configure the Machine Profile tab of the Host Setting. For details of setting the Machine Profile tab, see Subsection 5.4.8, "Configuring Settings on the Machine Profile Tab (if the Model Type is VM)."

5.8.7. Configuring Settings on the Host Profile Tab (Windows Server)

Configure the Host Profile tab of the Host Setting.

To configure the settings on the Host Profile Tab, see Subsection 5.4.9, "Configuring Settings on the Host Profile Tab (Windows Server)."

5.8.8. Configuring Settings on the Host Profile Tab (Linux)

Configure the Host Profile tab of the Host Setting.

To configure the settings on the Host Profile Tab, see Subsection 5.4.10, "Configuring Settings on the Host Profile Tab (Linux).

5.8.9. Configuring Settings on the Host Profile Tab (Windows Client)

Configure the Host Profile tab of the Host Setting.

To configure the settings on the Host Profile Tab, see Subsection 5.4.11, "Configuring Settings on the Host Profile Tab (Windows Client)."

5.8.10. Configuring Settings on the Datastore Tab (if the Model Type is VM Server)

Configure the Datastore tab of the Host Setting.

This tab appears only when the Model Type is the VM Server.

To configure the settings on the Datastore Tab, see Subsection 5.4.12, "Configuring Settings on the Datastore Tab (if the Model Type is VM Server)."

5.8.11. Configuring Settings on the Alive Monitor Tab

On the Alive Monitor tab of the Host Setting, the values configured on the Group Property Setting can be changed for each host. The Alive Monitor tab setting of each level is enabled in the following priority order: Host, Model, and Group.

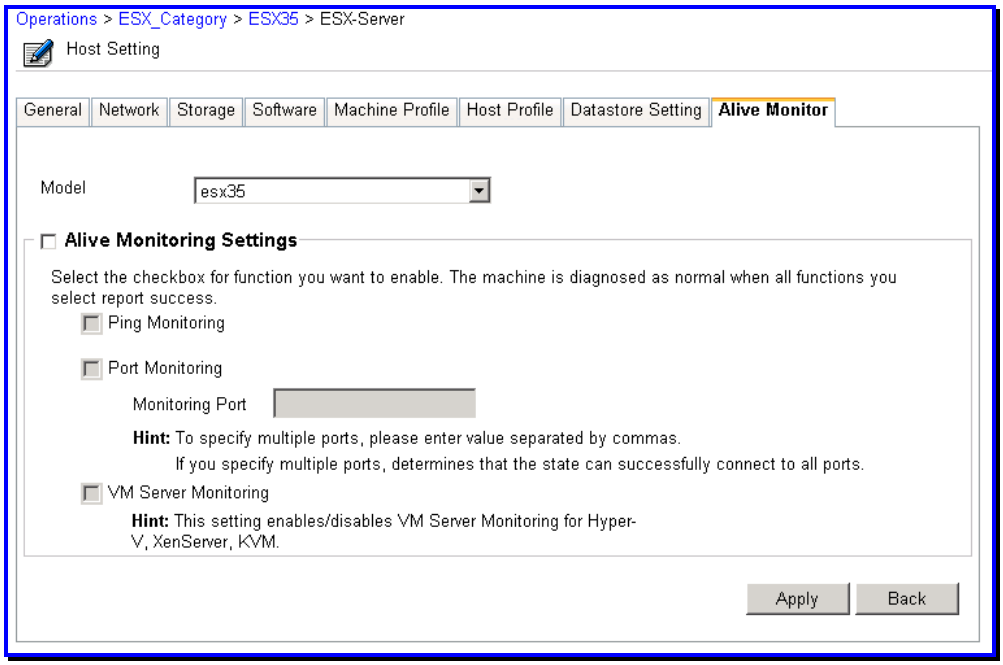
To configure this tab, perform the following procedure:

Note:

▪ This tab can be configured only if the alive monitoring feature is enabled on the Group Property Setting. In addition, if this tab is not configured, the other Alive Monitor tab settings are enabled in the following priority order: Model, Group.

▪ If the check box of the target model, located under Model Type of Monitor Target on the Alive Monitor tab of the Management view, is cleared, this tab does not appear.

1. Display the **Host Setting** on the Main Window, and click the **Alive Monitor** tab.


Operations > ESX_Category > ESX35 > ESX-Server
Host Setting
General
Network
Storage
Software
Machine Profile
Host Profile
Datastore Setting
Alive Monitor
Model
esx35
Alive Monitoring Settings
Select the checkbox for function you want to enable. The machine is diagnosed as normal when all functions you select report success.
Ping Monitoring
Port Monitoring
Monitoring Port
Hint: To specify multiple ports, please enter value separated by commas.
If you specify multiple ports, determines that the state can successfully connect to all ports.
VM Server Monitoring
Hint: This setting enables/disables VM Server Monitoring for Hyper-V, XenServer, KVM.
Apply
Back

2. To change the values configured on the Group Property Setting for each host, select the **Alive Monitoring Settings** check box. The configured values of the model that is selected in the **Model** list are displayed by default. These default values can be changed by changing the selected model in the **Model** list.
3. To monitor the host with Ping, select the **Ping Monitoring** check box.

Reference: Some kinds of OSs running on a management server need the firewall exception setting before using **Ping Monitoring** of the alive monitoring. For how to configure the firewall exception setting, see "Adding ICMP Echo Reply to the Exception List of Windows Server 2008 Firewall" Appendix A, "Network Ports and Protocols" in *SigmaSystemCenter Data Reference Guide*.

4. To monitor whether the TCP Port of the host activated at the group is connectable or not, select the **Port Monitoring** check box, and enter the port number to monitor in the **Monitoring Port** box.

5. To monitor the virtual machine server activated at the host, select the **VM Server Monitoring** check box. The **VM Server Monitoring** check box appears only if the model type is the **VM Server**.
6. Click **Apply**.

5.9. Configuring a Resource Pool

A machine consists of lots of resources, such as CPU, memory, and disk, etc.

Resource Pool is offered for simplifying and optimizing the management of such resources in the private cloud environment.

A resource pool abstracts all the resources that are accessible from a machine, such as machine resources and shared disks, activated at the operation group which has the VM Server Model. Each resource has concepts of capacity (the total number), consumption, and reservation.

A resource pool can be divided into sub-pools. A specified resource is added to the parent resource pool's reservation. Because overcommitting is allowed, sub-pools can be created over the capacity of the parent resource.

A resource pool has attributes, Shared or Dedicated. To create a sub-pool and assign it to a group, select Shared. To assign a resource pool directly to a group, select Dedicated.

5.9.1. Adding a Resource Pool

A resource pool can be added only when the model type is the VM Server.

A resource pool also can be created before adding the virtual machine server to an operation group. The size of a resource pool is calculated according to the status of the registered virtual machine server.

To add a resource pool, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target operation group to add a resource pool in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click Resource Pool - **Create** on the Configuration menu.
5. **Create Resource Pool** appears on the Main Window.
6. Enter the resource pool name in the **Name** box. (Required)

   A resource pool name must be unique including names of sub-pools. It is convenient involving words that represent geographical features and differences of service levels in a resource pool name.
7. Select either of **Shared** or **Dedicated** for the resource pool type. (Required)

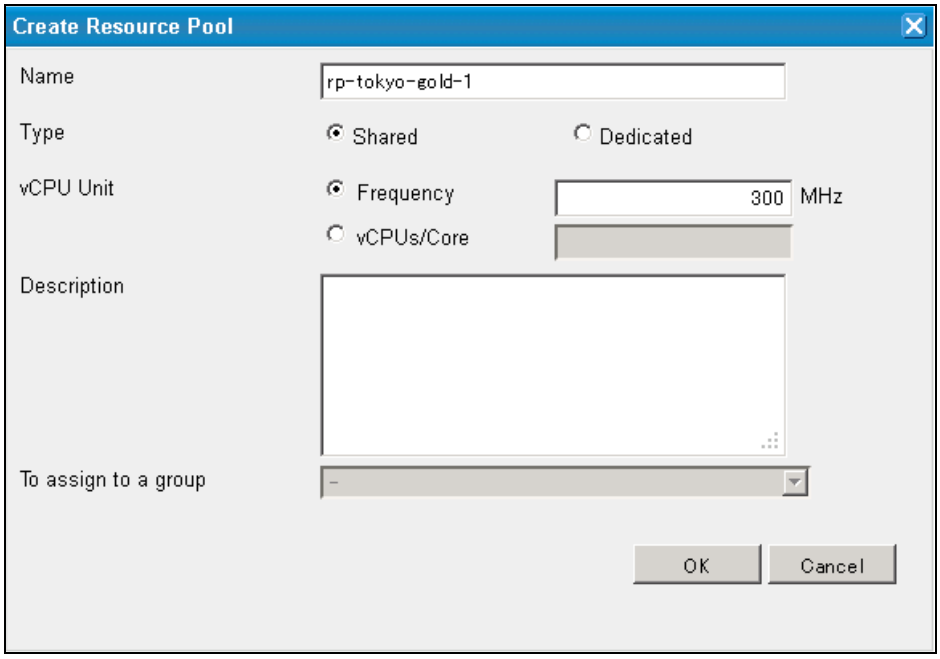
   To divide a resource pool into sub-pools, and assign it to a group, select **Shared**. To assign a resource pool directly to a group, select **Dedicated**. The type cannot be changed after creating the resource pool.

8. Select either of **Frequency** or **vCPUs/Core** for the vCPU unit, and enter the value in the text box. (Required)

   If you select **Frequency**, specify the value by MHz.

   For example, enter 300 for **Frequency** or enter 10 for vCPU. The capacity of the number of vCPU as a resource pool is calculated based on the value registered here.

9. To assign the resource pool to a group, select the target group to assign the resource pool in the pull down list. The group to which the resource pool can be assigned here is the top category group on which the resource management ID is configured. If the type is **Shared**, the resource pool cannot be assigned.



10. Click **OK**.
11. **Resource Pool** tab appears on details of the operation group. If the **Resource Pool** tab is selected, details of the created resource pool appear.

After creating a resource pool, proceed to the next operations such as creating a sub-pool, activating the virtual machine server, or creating a virtual machine.

5.9.2. Dividing a Resource Pool into a Sub-Pool

A sub-pool is created by dividing a resource pool logically.

To divide a resource pool into a sub-pool, perform the following procedure:

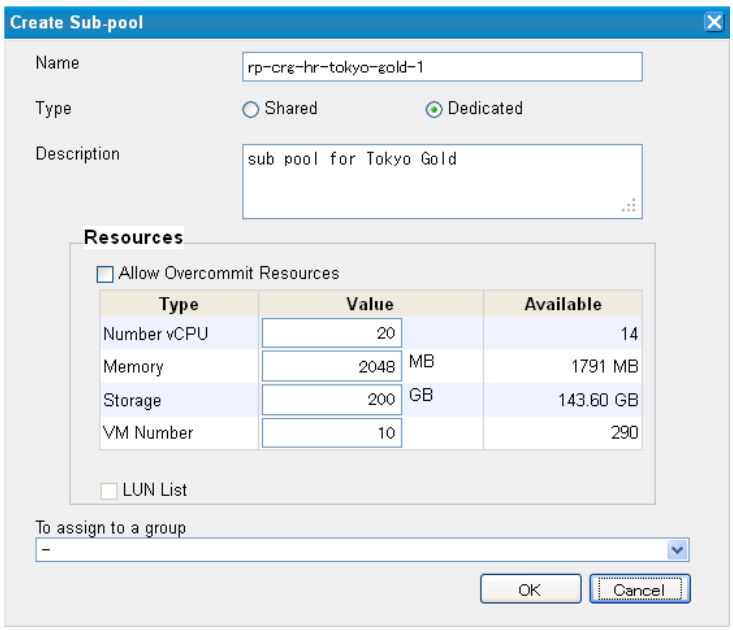
1. Click **Operations** on the Title bar to switch to the **Operations** view.

2. Click the icon of the target operation group to divide into a sub-pool in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click the **Resource Pool** tab.
5. Click **Resource Pool** - **Create Sub-pool** on the Configuration menu.
6. **Create Sub-pool** appears on the Main Window
7. Enter the sub-pool name in the **Name** box. (Required)

   It is convenient involving words that relate to the company and the name of the parent resource pool in a sub-pool name.
8. Select either of **Shared** or **Dedicated** for the sub-pool type. (Required)

   Dedicated is selected for a sub-pool by default.
9. To allow assigning resources over the configured maximum values, select the **Allow Overcommit Resources** check box.
10. Enter the vCPU number for assigning to the sub-pool. On the resource setting, if you omit this item or enter 0 for this item, the value is not used for checking the upper limit of creating a virtual machine.
11. Enter the memory capacity for assigning to the sub-pool by MB.
12. Enter the storage capacity for assigning to the sub-pool by GB.
13. Enter the number of VMs for assigning to the sub-pool.
14. To allocate LUN for RDM to a sub-pool, select the **LUN List** check box. LUN List will appear and select the LUN size which you want to allocate in the pull down list and enter the number of LUNs to be allocated. (To assign LUN, LUN for RDM should be prepared in advance. For more details about RDM or how to use RDM, refer to Subsection 2.2.14, "Raw Device Mapping (RDM)" and Subsection 2.2.15, "How to Use RDM (When Creating LUN))") in *SigmaSystemCenter Overview Reference Guide*.

15. To assign the sub-pool to a group, select the target group to assign the group in the pull down list. The group to which the sub-pool can be assigned here is the top category group on which the resource management ID is configured. If the type is **Shared**, the sub-pool cannot be assigned.



16. Click **OK**.

5.9.3. Configuring a Datastore in a Resource Pool

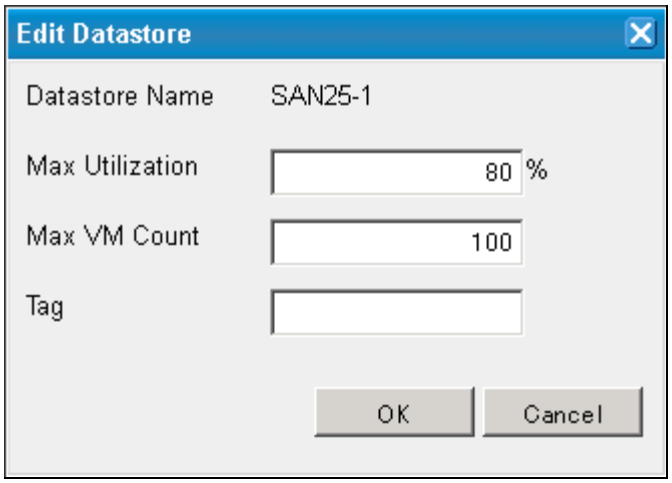
A resource pool includes a datastore to which the virtual machine server can refer.

There are two kinds of datastore settings: one is the setting for each datastore such as the upper limit of the usage and the number of VMs, and the other is the setting for each virtual machine server such as whether to include the resource pool in the destination for creating virtual machines or not.

To configure the setting for each datastore, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target operation group with the resource pool where a datastore to configure exists in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click the **Resource Pool** tab.
5. Click the **Edit** of the datastore that is to be configured under **Datastore List**.

6. **Edit Datastore** dialog box appears.



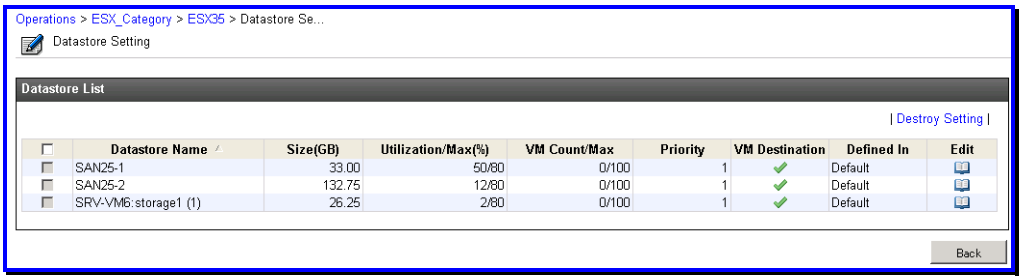
7. Specify a value by percentage in the **Max Utilization** box. The capacity of the storage is calculated using this value.
8. Enter a value in the **Max VM Count** box. The capacity of the number of VMs is calculated using this value.
9. Enter a value in the **Tag** box. The tag is an attribute according to the storage performance and service levels. If the **Tag** is configured as the destination datastore on the machine profile of creating virtual machines, the datastore with a tag is selected as a destination datastore. Multiple tags can be configured separating with a space.
10. Click **OK**.

The setting for each datastore can be configured from the **Edit** under **Datastore List** on details of the virtual machine server, located on the **Virtual** view.

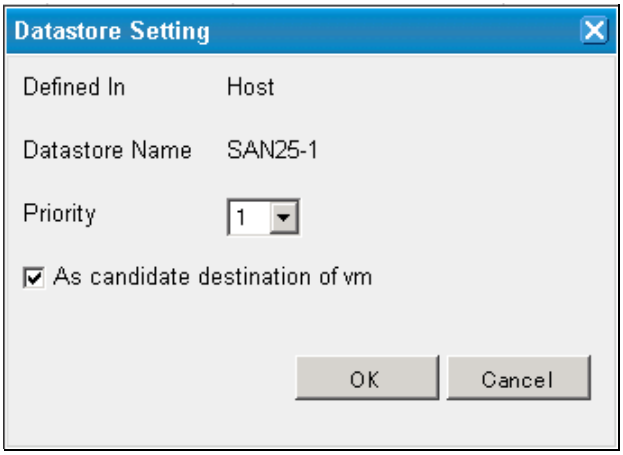
To configure the setting for each virtual machine server, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target operation group with the resource pool where a datastore to configure exists in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click the **Resource Pool** tab.
5. Click the **Edit** of the virtual machine server that is to be configured under **Resource List**.

6. **Datastore Setting** appears on the Main Window.



7. Click the **Edit** of the datastore that is to be configured under **Datastore List**.
8. **Datastore Setting** dialog box appears.



9. Select the priority from the **Priority** list.
10. To exclude the datastore from the destination to create virtual machines, clear the **As candidate destination of vm** check box.
11. Click **OK**.

The setting for each virtual machine server can be configured from the host setting of the operation group. The setting as the whole group also can be configured on the operation group.

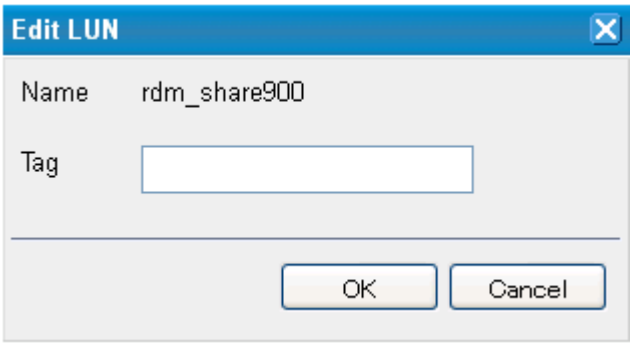
5.9.4. Setting Up LUN in the Resource Pool

A resource pool can include the LUNs assigned to virtual machines as RDM disks. Resource pools contain LUNs for RDM which can be referred by a virtual machine server. For more details of RDM and how to use it, refer to "2.2.14 Raw Device Mapping (RDM)" and "2.2.15 How to Use RDM (When Creating LUN)" in *SigmaSystemCenter Overview Reference Guide*.

The tag, which is used to specify the RDM to be assigned to virtual machines during its creation, can be set to LUN.

Follow the procedures below to set up the LUN.

1. Click **Operation** on the title bar to switch to the **Operations** view.
2. Click the icon of the operation group whose LUN is intended to be set from the **Operation** tree.
3. The details of the group are displayed on the main window.
4. Click **Resource Pool** tab.
5. Click **Edit** of LUN to be set up from the **LUN List**.
6. **Edit LUN** box is displayed.



7. Type the tag in the **Tag** box. If the tag is specified as the Target LUN in the machine profile during the virtual machine creation, the LUN with the tag is selected as the candidate destination. Multiple tags can be set by separating with space characters.
8. Click **OK**.

5.9.5. Configuring a Logical Network in a Resource Pool

A resource pool includes a port group existing on the virtual machine server.

A logical network corresponding to this port group can be configured.

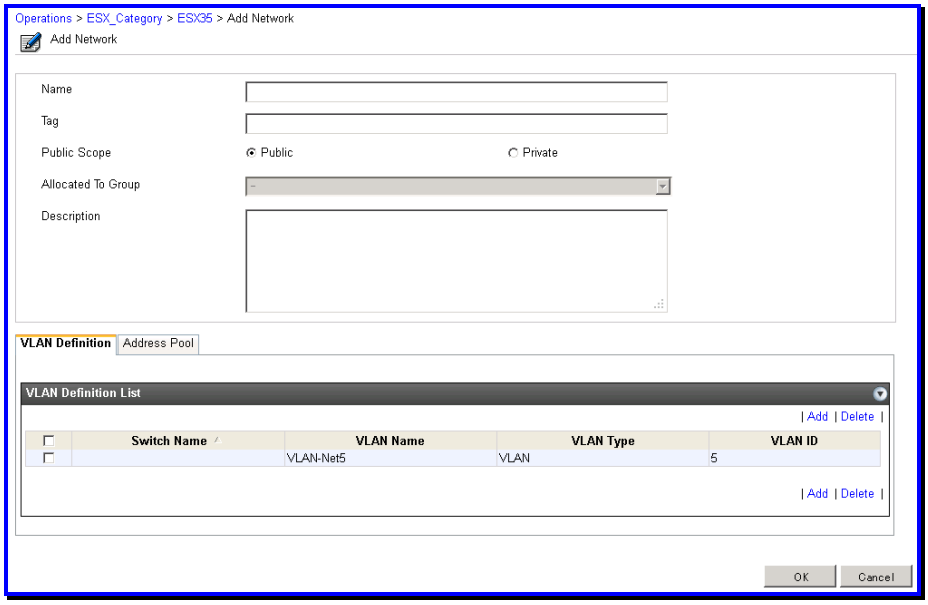
If a logical network is configured to the network information of a machine profile, the logical network can be specified as the destination to which virtual NIC of a virtual machine connects.

Reference: A logical network can be configured from the Resource view. For details, see 4.4.6, "Adding a Logical Network."

- Adding a logical network

  To create a logical network, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target operation group with the resource pool where a logical network to configure exists in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click the **Resource Pool** tab.
5. Select a port group for which a logical network to be created and of which the type is **Virtual Machine** under **Network List**.
6. Click the **Create Logic Network** of the Action menu.
7. **Add Network** appears on the Main Window.



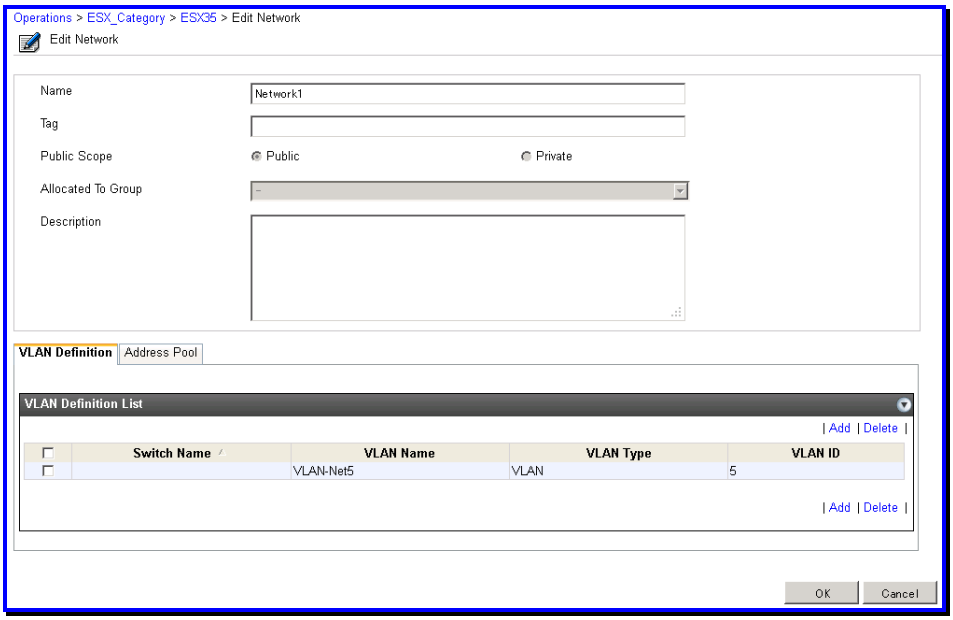
8. Enter the name of the logical network to create in the **Name** box.
9. To configure a tag on the logical network, configure the tag in the **Tag** box.
10. Configure the range of opening the logical network for **Public Scope**. To open the logical network to all categories that uses this resource pool, configure **Public**. To limit the range of opening the logical network, select **Private**, and select the category to open the logical network in the **Allocated To Group** list.
11. To generate IP addresses, configure the necessary settings for the Address Pool tab. For details, see 4.4.6, "Adding a Logical Network."
12. Click **OK**.

◆ Changing an already created logical network

To change an already created logical network, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target operation group with the resource pool where a logical network to configure exists in the **Operations** tree.
3. Details of the group appear on the Main Window.

4. Click the **Resource Pool** tab.
5. Click the **Edit** of the port group which includes the name of the logical network to change under **Network List**.
6. **Edit Network** appears on the Main Window.



7. Change the items that are to be changed.
8. Click **OK**.

◆ Deleting an already created logical network

To delete an already created logical network, perform the following procedure:

Note: If a logical network is deleted, a port group is not deleted.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target operation group with the resource pool where a logical network to delete exists in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click the **Resource Pool** tab.
5. Click the **Edit** of the port group which includes the name of the logical network to delete under **Network List**.
6. Click the **Delete Logic Network** of the Action menu.

6. Settings to Manage and Operate Virtual Environment

This chapter explains how to manage and operate a virtual environment in SigmaSystemCenter.

This chapter contains the following sections:

- 6.1 Creating a Virtual Machine 294
- 6.2 Creating a Template 308
- 6.3 Configuring to Use the VM Optimized Placement Feature..... 321

6.1. Creating a Virtual Machine

With SystemProvisioning, a virtual machine can be created on a virtual machine server managed in SystemProvisioning. This section explains the necessary settings to create a virtual machine.

To create a virtual machine from SystemProvisioning, there are the following four procedures:

Clone Method	Environment
Full Clone	VMware environment (other than Standalone ESXi)
	Xen environment *1
HW Profile Clone	VMware environment (Standalone ESXi is recommended)
	Hyper-V environment
Differential Clone	VMware environment
	Xen environment
	Hyper-V environment
	KVM environment
Disk Clone	VMware environment (Standalone ESXi is recommended)
	Xen environment
	Hyper-V environment
	KVM environment

*1 The templates can be created only from the Virtual view.

Note: To use Differential Clone templates, the Differential Clone option is required in addition to the target license.

Reference: For the functionalities and features of each method, see Section 2.3, "Full Clone", Section 2.4, "HW Profile Clone", Section 2.5, "Differential Clone", and Section 2.6, "Disk Clone" in *SigmaSystemCenter Overview Reference Guide*.

6.1.1. About How to Create a Virtual Machine

To create a virtual machine in SystemProvisioning, there are two methods: creating in the Virtual view, and creating in the Operations view. This subsection provides the difference between these methods and how to.

- Creating in the Virtual view

  If you create a virtual machine in the Virtual view, the created virtual machine will be a complete clone of a master VM, and you cannot configure information, such as a host name or IP address, to the virtual machine individually.

  Note:

  ▪ A virtual machine can be created only with a Full Clone template.

  ▪ A virtual machine can be created only on the following virtual machine servers:

  - ESX and ESXi managed in VMware vCenter Server
  - XenServer

  The procedure to create a virtual machine in the Virtual view and activate the machine in a group is as follows:

  1. Create a virtual machine by executing **Create VM (Template)** on the Configuration menu in the **Virtual** view.
  2. You cannot customize the virtual machine. Configure the virtual machine manually after creating the machine.
  3. Activate the virtual machine in a group by executing **Register Master Machine** of the Action menu in the **Operations** view.

  Reference: For more details of how to create a virtual machine in the Virtual view, see Section 8.2, "Creating a Virtual Machine in the Virtual View."

- Creating in the Operations view

  If you create a virtual machine by Create and Assign Machine in the Operations view, you can configure information, such as a host name or IP address, to the virtual machine individually.

  The following procedure is to create a virtual machine in the Operations view and activate the machine in a group.

  1. Create a virtual machine and activate the machine in a group by executing **Create and Assign Machine** of the Action menu in the **Operations** view.

  Reference: For more details of how to create a virtual machine in the Operations view and activate the machine in a group, see Subsection 7.2.3, "Creating a Virtual Machine and Activating the Machine in a Group."

6.1.2. Creating a Virtual Machine Using the Full Clone Method

To create a virtual machine with the Full Clone method, use a Full Clone template. If Create and Assign Machine is executed from SystemProvisioning with a Full Clone template, a virtual machine can be created on vCenter Server.

Register a Full Clone template to an operation group as distribution software.

Note: A virtual machine also can be created by using the Full Clone template in the Virtual view. For the procedure, see Section 8.2, "Creating a Virtual Machine in the Virtual View." In the Xen environment, however, creating virtual machines by using a Full Clone template is available only in the Virtual view.

1. Setting up a master VM

Set up a master VM to be an original virtual machine of a template by reference to Subsection 3.12.1, "Creating a Master VM in vCenter Server" or 3.12.2, "Creating a Master VM in XenCenter."

2. Creating a template

Create a Full Clone template from the master VM by reference to 6.2.1, "Creating a Full Clone Template."

3. Registering the template to an operation group (only for the VMware environment)

Register the template as distribution software to an operation group by reference to Subsection 5.8.4, "Configuring Settings on the Software Tab."

Note: This procedure is unnecessary for the Xen environment.

4. Configuring details of a model

Configure details of a model by reference to Section 5.6, "Configuring Model Properties (For a Virtual Machine)."

5. Creating a virtual machine and activate the machine in a group

- In the VMware environment

  Execute Create and Assign Machine to create a virtual machine and activate the machine in a group. For the procedure, see Subsection 7.2.3, "Creating a Virtual Machine and Activating the Machine in a Group."

- In the Xen environment

  1. Create a virtual machine based on the template registered in SystemProvisioning. Creating a virtual machine is available on XenCenter or in the **Virtual** view.

  2. Change the machine-specific information, including a host name, IP address, and Administrator password, from XenCenter.

3. Create the Host Setting that is adjusted to the changed machine-specific information. With the Host Setting, execute Register Master Machine to the created virtual machine and register the machine in a group.

6.1.3. Creating a Virtual Machine Using the HW Profile Clone Method

To create a virtual machine with the HW Profile Clone method, use a HW Profile Clone template and scenario. A virtual machine can be created on vCenter Server, Standalone ESXi and Hyper-V from SystemProvisioning with the HW Profile Clone template.

SystemProvisioning creates an empty VM, a virtual machine without OS, based on a HW Profile Clone template, and then, installs OS and applications using a scenario.

Register a HW Profile Clone template and scenario to an operation group as distribution software.

Note:

▪ The DPM OS installation by disk duplication installs OS and applications into an empty VM for HW Profile Clone. Therefore, the operation of HW Profile Clone must follow instructions in Subsection 3.3.2, "DPM Controllable Environment" in the *SigmaSystemCenter First Step Guide*.

▪ For virtual machines, the WOL (Wake On LAN) from DPM is not supported. When taking a backup of the master VM's virtual machines, execute it from SystemProvisioning. If it is executed from DPM, the virtual machines must be turned ON manually from SystemProvisioning or related products' managers.

1. Setting up a master VM

   Set up a master VM to be an original virtual machine of a template by reference to Subsection 3.12.1, "Creating a Master VM in vCenter Server," 3.12.3, "Creating a Master VM on ESXi," or 3.12.4, "Creating a Master VM on Hyper-V."

2. Registering the master VM in DPM

   Register the master VM in DPM by reference to Subsection 3.7.5, "Registering a Virtual Machine to DPM."

3. Creating a disk duplication data file of the master VM

   For the procedure, see Subsection 3.11.2, "Operation with OS Installation by Disk Duplication" and Section 5.4 "Creating a Setup Parameter File" in *DeploymentManager Reference Guide*.

4. Creating a backup scenario

   Create a backup scenario by reference to Subsection 3.11.4, "Creating a Backup Scenario File."

5. Registering the master VM in SystemProvisioning

Execute Collect in SystemProvisioning, and register the master VM and the backup scenario to SystemProvisioning.

6. Taking a snapshot of the mater VM

7. Deleting the machine-specific information of the master VM

Delete the machine-specific information of the master VM by reference to Subsection 3.11.3, "Preparing for Backing up the Master Machine."

8. Taking a backup of the master VM in PVM

From **Distribute Software** on the **Resource** view, select the backup scenario created in the procedure 4, and take a backup of the master VM.

9. Reverting the master VM

Revert the master VM to the snapshot taken in the procedure 6.

10. Deleting all snapshot of the master VM

11. Creating a restore scenario from the backup

Create a restore scenario from the backup by reference to Subsection 3.11.5, "Creating a Restore Scenario File." Then, execute Collect in SystemProvisioning, and register the restore scenario to SystemProvisioning.

Note: Multicast distribution from DPM to a virtual machine on Hyper-V is not supported. When creating a restore scenario, specify the data distribution by unicast.

12. Creating a template

Create a template by reference to Subsection 6.2.2, "Creating a HW Profile Clone Template."

13. Registering the template and restore scenario to an operation group

Register the template and restore scenario to an operation group as distribution software. For the procedure, see Subsection 5.8.4, "Configuring Settings on the Software Tab."

In the case of creating virtual machines on Hyper-V, one HW Profile Clone template can be used among multiple Hyper-Vs.

In the case of creating virtual machines on ESXi, one HW Profile Clone template can be used only on the ESXi to which the master VM belongs. However, if a datastore is shared by multiple ESXi, one template can be used among multiple ESXis.

14. Configuring details of a model

Configure details of a model by reference to Section 5.6, "Configuring Model Properties (For a Virtual Machine)."

15. Creating a virtual machine and activate the machine in a group

Execute Create and Assign Machine to create a virtual machine and activate the machine in a group. For the procedure, see Subsection 7.2.3, "Creating a Virtual Machine and Activating the Machine in a Group."

6.1.4. Creating a Virtual Machine Using the Differential Clone Method

To create a virtual machine with the Differential Clone method, use a Differential Clone template. A virtual machine can be created on vCenter Server, XenServer, Standalone ESXi, Hyper-V and KVM from SystemProvisioning with the Differential Clone template.

SystemProvisioning creates an image (replica VM) for a Differential Clone template based on a master VM, and then, creates a difference disk based on the image to create a new virtual machine.

Register a Differential Clone template to an operation group as distribution software.

1. Setting up a master VM

Set up a master VM to be an original virtual machine of a template by reference to Subsection 3.12.1, "Creating a Master VM in vCenter Server," 3.12.2, "Creating a Master VM in XenCenter," 3.12.3, "Creating a Master VM on ESXi" , 3.12.4, "Creating a Master VM on Hyper-V" or "3.12.5 Creating a Master VM on KVM".

2. Preparing for deployment of the virtual machine with DPM

If the virtual machine server is managed in vCenter Server, vCenter Server deploys the virtual machines. Therefore, this procedure is unnecessary. Skip to the procedure 7.

Reference: For details of the processing to create a Differential Clone, see Subsection 1.3.1, "Overview of Image Deployment", 1.3.11, "How to use Sysprep - Full Clone, Differential Clone, Disk Clone (Sysprep, vCenter Server) -", Subsection 1.3.12, "How to use Sysprep - Differential Clone, Disk Clone (Sysprep, DPM) -" and Subsection 1.3.13 "How to use Sysprep - Differential Clone, Disk Clone (LinuxRepSetUp, DPM) -" in *SigmaSystemCenter Overview Reference Guide*.

---

3. Registering the master VM in DPM

If you specified the name of the OS that is installed in the master VM on the **Host Profile** tab of the group property setting or the host setting for the group where the virtual machine is to be activated, this procedure (registering the master VM in DPM) and the procedure 4 (creating a disk duplication data file for the master VM) are unnecessary. In this case, check the following notes, and skip to the procedure 5.

Note: If the name of the OS that is installed in the master VM is specified on the **Host Profile** tab of the group property setting or the host setting for the group where the virtual machine is to be started, check the following notes:

▪ The disk duplication data file of the master VM is created automatically. Windows parameter file (Express) is created for the Windows Server 2008, Windows Vista, and Windows 7. Windows parameter file is created for the other Windows OSs. Therefore, follow the procedure corresponding to the machine in the procedure 5 for preparing for automatic execution of Sysprep.

▪ If the disk duplication data file of the master VM is created manually, the information of the disk duplication data file is used for the unconfigured items on the **Host Profile** tab as the default values. In order to prevent the system influenced by the unnecessary disk duplication data files, ensure that the unnecessary disk duplication data files are deleted. For details, see Section 5.6, "Delete Package" in *DeploymentManager Reference Guide*. However, if a Windows parameter file has been created for the master VM in a situation where SigmaSystemCenter is upgraded from a previous version, the system works as usual with the Windows parameter file. Therefore, the disk duplication data file (Windows parameter file) does not have to be deleted.

▪ If an unintended parameter file is used in situations such as the procedure for preparing for automatic execution of Sysprep is mistaken or an unintended parameter file exists, the processing will fail. For details, see Subsection 3.3.4, "Precautions/Other" in *DeploymentManager Operation Guide*.

If the name of the OS that is installed in the master VM is NOT specified on the **Host Profile** tab of the group property setting or the host setting for the group where the virtual machine is to be activated, register the master VM in DPM. For the details, see Subsection 3.7.5, "Registering a Virtual Machine to DPM."

4. Creating a disk duplication data file for the master VM.

Create a disk duplication data file with Image Builder.

For the procedure to create a disk duplication data file, see Subsection 5.4, "Creating a Setup Parameter File" in *DeploymentManager Reference Guide*

Note:

▪ Windows parameter file (Express) and Windows parameter file are prepared as a disk duplication data file for Windows Server 2008, Windows Vista, and Windows 7. To create a disk duplication data file for Windows Server 2008, Windows Vista, and Windows 7 from now on, follow the procedure to use Windows parameter file (Express).

▪ If both Windows parameter file (Express) and Windows parameter file exist for the same master machine, Windows parameter file is not used in operations because Windows parameter file (Express) has the priority over Windows parameter file. To use Windows parameter file, delete Windows parameter file (Express) if it exists. For the procedure, see Section 5.6, "Delete Package" in *DeploymentManager Reference Guide.*

If an unintended parameter file is used, the message appears on the command prompt window during the processing to prompt you to restart the managed machine. For details, see Subsection 3.3.4, "Precautions/Other" in *DeploymentManager Operation Guide.*

5. Preparing for automatic execution of Sysprep.

Prepare for automatic execution of Sysprep for the master VM. The procedures before running Sysprep are the same as the procedures for a physical machine or HW Profile Clone. See Subsection 3.11.3, "Preparing for Backing up the Master Machine", and perform the procedure 1 through 6.

6. Configuring automatic execution of Sysprep towards the master VM

Click the icon of the target master VM on the **Resource** view, and click **Property** on the Configuration menu. Select the **Software** tab and click **Add** of the Action menu on the **Software List** box to display the **Add Software** dialog box. Select **When create replica** in the **Timing of distribution** list, select a Sysprep execution scenario, and click **OK**. Confirm that the scenario is added and click **Apply**.

For how to create the Sysprep execution scenario, see Subsection 6.1.6, "Creating a Sysprep Execution Scenario."

7. Turning OFF the master VM and creating a snapshot

Create a snapshot on the master VM by reference to Subsection 6.2.5, "Creating a Snapshot."

8. Creating a template

After creating a snapshot on the master VM, create a template by reference to Subsection 6.2.3, "Creating a Differential Clone Template."

Note: If automatic execution of Sysprep in the procedure 6 was not executed, create a snapshot on the image (replica VM) of the template.

9. Registering a template to an operation group

Register the template as distribution software to an operation group. For the procedure, see Subsection 5.8.4, "Configuring Settings on the Software Tab."

In the case of creating virtual machines on Hyper-V single server, one Differential Clone template can be used only on the Hyper-V to which the master VM belongs.

In the case of creating virtual machines on Hyper-V cluster, create the template on CSV to use it among all the hosts in the cluster.

In the case of creating virtual machines on ESXi, one Differential Clone template can be used only on the ESXi to which the master VM belongs. However, if a datastore is shared by multiple ESXis, one template can be used among multiple ESXis.

10. Configuring details of the model

Configure details of a model by reference to Section 5.6, "Configuring Model Properties (For a Virtual Machine)."

11. Configuring the OS name for the Host Profile

If a disk duplication data file of DPM is not created for the master VM, configure the name of the OS that is installed in the master VM for the OS setting on the Host Profile.

Note: For Windows, specify a correct OS name because the processing is different according to the kinds of OSs.

12. Creating a virtual machine and starting the machine in a group

Execute Allocate Resource to create a virtual machine and activate the machine in a group by reference to Subsection 7.2.3, "Creating a Virtual Machine and Activating the Machine in a Group."

6.1.5. Creating a Virtual Machine Using the Disk Clone Method

To create a virtual machine with the Disk Clone method, use a Disk Clone template. A virtual machine can be created on a XenServer, Standalone ESXi, Hyper-V and KVM from SystemProvisioning with the Disk Clone template. If the virtual machine server is managed in vCenter Server, it is highly recommended that you use Full Clone, not Disk Clone.

SystemProvisioning creates an image of a Disk Clone template based on the master VM, and then, copies a virtual disk based on the image to create a new virtual machine.

Register a Disk Clone template to an operation group as distribution software.

Note: Disk Clone templates that were created in the vCenter Server environment in SigmaSystemCenter 2.1 update 3 or before are unavailable for SigmaSystemCenter 3.0 or later because the method of customizing a virtual machine has been changed. Release the Sysprep setting for DPM, and create Disk Clone templates again.

---

1. Setting up a master VM

Set up a master VM to be an original virtual machine of a template by reference to Subsection 3.12.2, "Creating a Master VM in XenCenter," 3.12.3, "Creating a Master VM on ESXi", 3.12.4, "Creating a Master VM on Hyper-V" or "3.12.5 Creating a Master VM on KVM".

2. Preparing for deployment of the virtual machine with DPM

If the virtual machine server is managed in vCenter Server, vCenter Server deploys the virtual machines. Therefore, this procedure is unnecessary. Skip to the procedure 7.

Reference: For details of the processing to create a Disk Clone, see Subsection 1.3.1, "Overview of Image Deployment", 1.3.11, "How to use Sysprep - Full Clone, Differential Clone, Disk Clone (Sysprep, vCenter Server) -", Subsection 1.3.12, "How to use Sysprep - Differential Clone, Disk Clone (Sysprep, DPM) -" and Subsection 1.3.13 "How to use Sysprep - Differential Clone, Disk Clone (LinuxRepSetUp, DPM) -" in *SigmaSystemCenter Overview Reference Guide*.

---

3. Registering the master VM in DPM

If you specified the name of the OS that is installed in the master VM on the **Host Profile** tab of the group property setting or the host setting for the group where the virtual machine is to be activated, this procedure (registering the master VM in DPM) and the procedure 4 (creating a disk duplication data file for the master VM) are unnecessary. In this case, check the following notes, and skip to the procedure 5.

Note: If the name of the OS that is installed in the master VM is specified on the **Host Profile** tab of the group property setting or the host setting for the group where the virtual machine is to be activated, check the following notes:

▪ The disk duplication data file of the master VM is created automatically. Windows parameter file (Express) is created for the Windows Server 2008, Windows Vista, and Windows 7. Windows parameter file is created for the other Windows OSs. Therefore, follow the procedure corresponding to the machine in the procedure 5 for preparing for automatic execution of Sysprep.

▪ If the disk duplication data file of the master VM is created manually, the information of the disk duplication data file is used for the unconfigured items on the **Host Profile** tab as the default values. To prevent the system influenced by the unnecessary disk duplication data files, ensure that the unnecessary disk duplication data files are deleted. For details, see Section 5.6, "Delete Package" in *DeploymentManager Reference Guide*. However, if a Windows parameter file has been created for the master VM in a situation where SigmaSystemCenter is upgraded from a previous version, the system works as usual with the Windows parameter file. Therefore, the disk duplication data file (Windows parameter file) does not have to be deleted.

▪ If an unintended parameter file is used in situations such as the procedure for preparing for automatic execution of Sysprep is mistaken or an unintended parameter file exists, the processing will fail. For details, see Subsection 3.3.4, "Precautions/Other" in *DeploymentManager Operation Guide*.

If the name of the OS that is installed in the master VM is NOT specified on the **Host Profile** tab of the group property setting or the host setting for the group where the virtual machine is to be started, register a master VM in DPM. For details, see Subsection 3.7.5, "Registering a Virtual Machine to DPM."

4. Creating a disk duplication data file for the master VM

Note: For the Xen environment, ensure that the disk is set to be prior to the NIC for the boot order of the master VM. If not, creating a virtual machine fails.

Create a disk duplication data file with Image Builder.

For the procedure, see Section 5.4, "Creating a Setup Parameter File" in *DeploymentManager Reference Guide*.

Note:

▪ Windows parameter file (Express) and Windows parameter file are prepared as a disk duplication data file for Windows Server 2008, Windows Vista, and Windows 7. To create a disk duplication data file for Windows Server 2008, Windows Vista, and Windows 7 from now on, follow the procedure to use Windows parameter file (Express).

▪ If both Windows parameter file (Express) and Windows parameter file exist for the same master machine, Windows parameter file is not used in operations because Windows parameter file (Express) has the priority over Windows parameter file. To use Windows parameter file, delete Windows parameter file (Express) if it exists. For the procedure, see Section 5.6, "Delete Package" in *DeploymentManager Reference Guide.*

If an unintended parameter file is used, the message appears on the command prompt window during the processing to prompt you to restart the managed machine. For details, see Subsection 3.3.4, "Precautions/Other" in *DeploymentManager Operation Guide.*

5. Preparing for automatic execution of Sysprep.

Prepare for automatic execution of Sysprep for the master VM. The procedures before running Sysprep are the same as the procedures for a physical machine or HW Profile Clone. See Subsection 3.11.3, "Preparing for Backing up the Master Machine", and perform the procedure 1 through 6.

6. Configuring automatic execution of Sysprep towards the master VM

Click the icon of the target master VM on the **Resource** view, and click **Property** on the Configuration menu. Select the **Software** tab and click **Add** of the Action menu on the **Software List** box to display the **Add Software** dialog box. Select **When create replica** in the **Timing of distribution** list, select a Sysprep execution scenario, and click **OK**. Confirm that the scenario is added and click **Apply**.

For how to create the Sysprep execution scenario, see Subsection 6.1.6, "Creating a Sysprep Execution Scenario."

7. Creating a template

To create a template, see Subsection 6.2.4, "Creating a Disk Clone Template."

8. Registering the template to an operation group

Register the template to an operation group as distribution software by reference to Subsection 5.8.4, "Configuring Settings on the Software Tab."

In the case of creating virtual machines on XenServer, one Disk Clone template can be used among multiple XenServers.

In the case of creating virtual machines on Hyper-V single server, one Disk Clone template can be used only on the Hyper-V to which the master VM belongs.

In the case of creating virtual machines on Hyper-V cluster, create the template on CSV to use it among all the hosts in the cluster.

In the case of creating virtual machines on ESXi, one Disk Clone template can be used only on the ESXi to which the master VM belongs. However, if a datastore is shared by multiple ESXis, one template can be used among multiple ESXis.

9. Configuring detailed information of a model

Configure detailed information of a model by reference to Section 5.6, "Configuring Model Properties (For a Virtual Machine)."

10. Configuring the OS name for the Host Profile

If a disk duplication data file of DPM is not created for the master VM, configure the name of the OS that is installed in the master VM for the OS setting on the Host Profile.

Note: For Windows, specify a correct OS name because the processing is different according to the kinds of OSs.

11. Creating a virtual machine and starting the machine in a group

Execute Allocate Resource to create a virtual machine and activate the machine in a group by reference to Subsection 7.2.3, "Creating a Virtual Machine and Activating the Machine in a Group."

6.1.6. Creating a Sysprep Execution Scenario

To create a scenario to run Sysprep that is used when creating Differential Clone and Disk Clone, perform the following procedure:

1. Registering the Package

With the DPM Image Builder, register the script for running Sysprep, *execsysprep.bat*, located under "\PVM\opt" in the SystemProvisioning installation folder.

Note: *execsysprep.bat* runs the OS's *sysprep.exe* internally.

Because the performance of *sysprep.exe* relies on the environment, verify it in your environment.

Reference: For how to register the package, see Section 5.5, "Package Registration/Modification" in *DeploymentManager Reference Guide*.

1. Launch **Image Builder** and click **Package registration/modification.**
2. From **File**, click **Create Windows package**. The **Create Windows package** screen will appear.
3. Select the **Basic** tab and fill in the **Package ID**. Select **Application** from the pull down under **Type**. Leave the setting under **Urgency** as the way it is set (**Normal**).
4. Select the **Execution Settings** tab and enter the path to *execsysprep.bat* for **Execution file**.
5. Select the **Applicable OS and language** tab. Under **OS name**, add **All OS** and under **Language name**, add **All Language**.
6. Click **OK** and create the Windows package.

2. Creating a Scenario

Create a scenario in the DPM Web Console.

For how to create a scenario, see the procedure 4 through 22 in Section 9.1.10, "Distributing an Additional Application and Applying a Patch to a Machine."

Note: Do NOT select the following check boxes in the Option tab:

- Forced Execution Of A Reboot Is Performed Before Execution
- Turn Off Power After Scenario Execution

Reference: For details of how to create a scenario, see Subsection 3.13.3, "Package Tab" in *DeploymentManager Reference Guide*.

6.2. Creating a Template

Templates that you can use from SystemProvisioning are:

- Full Clone template
- HW Profile Clone template
- Differential Clone template
- Disk Clone template

6.2.1. Creating a Full Clone Template

After creating a master VM of the VMware environment or Xen environment, create a Full Clone template. SigmaSystemCenter displays different windows according to whether a Full Clone template is created from a virtual machine on VMware vCenter Server or not.

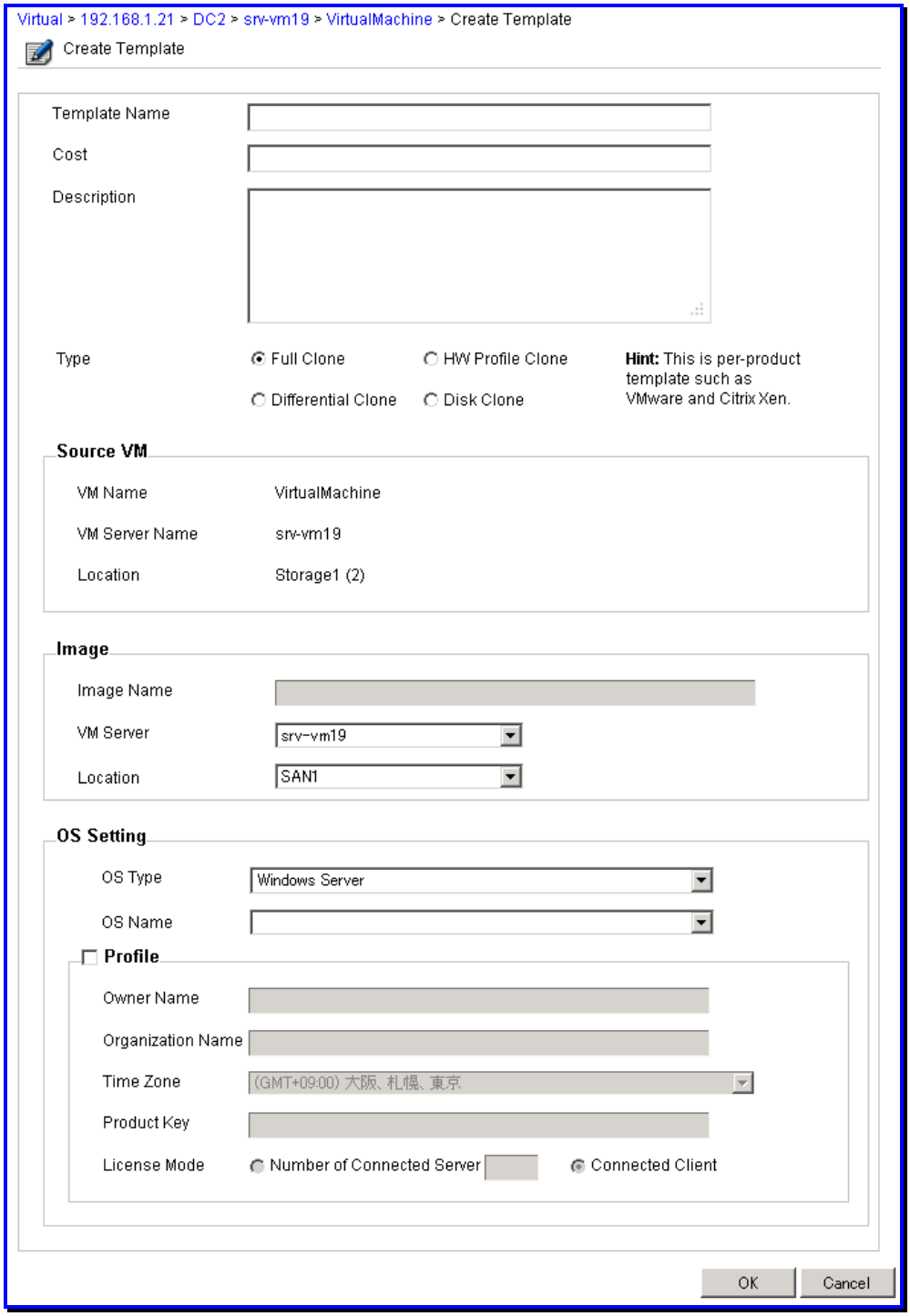
To create a Full Clone template, perform the following procedure:

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the master VM to be a source of the template in the **Virtual** tree.

Note: You need to power off the machine to be a source of a template beforehand.

3. Click **Create Template** on the Configuration menu.

4. **Create Template** appears on the Main Window.



5. Enter a template name for the Full Clone template in the **Template Name** box. (Required)
6. Enter a cost value for when creating a virtual machine from a Full Clone template in the **Cost** box.

7. Select **Full Clone** as **Type**.
8. Select a destination virtual machine server in the **VM Server** list.
9. Select a destination datastore in the **Location** list.
10. For the vCenter Server environment, select the OS type of the virtual machine in the **OS Type** list. The **OS Name** list is optional.

    For the other environments, this procedure is unnecessary. Skip to the next procedure.
11. The profile information relevant to the OS can be given to the template. To give the profile information, select the **Profile** check box, and follow the procedure below. If it is unnecessary, skip to the procedure 17.
12. If the OS Type is Windows Server / Windows Client, enter a name of the OS license owner in the **Owner Name** box.
13. If the OS Type is Windows Server / Windows Client, enter an organization name of the OS license in the **Organization Name** box.
14. If the OS Type is Windows Server / Windows Client, select the time zone in the **Time Zone** list.
15. If the OS Type is Windows Server / Windows Client, enter a product key of the OS in the **Product Key** box.
16. If the OS Type is Windows Server, select the license mode as **License Mode**. If you select **Number of Connected Server**, enter the number of servers to connect at the same time in the text box.
17. Click **OK**.
18. Confirm that the created template is added under **Template List**.

6.2.2. Creating a HW Profile Clone Template

After creating a master VM of the VMware environment (a standalone ESXi is recommended) or Hyper-V environment, create a HW Profile Clone template with the following procedure:

Note:

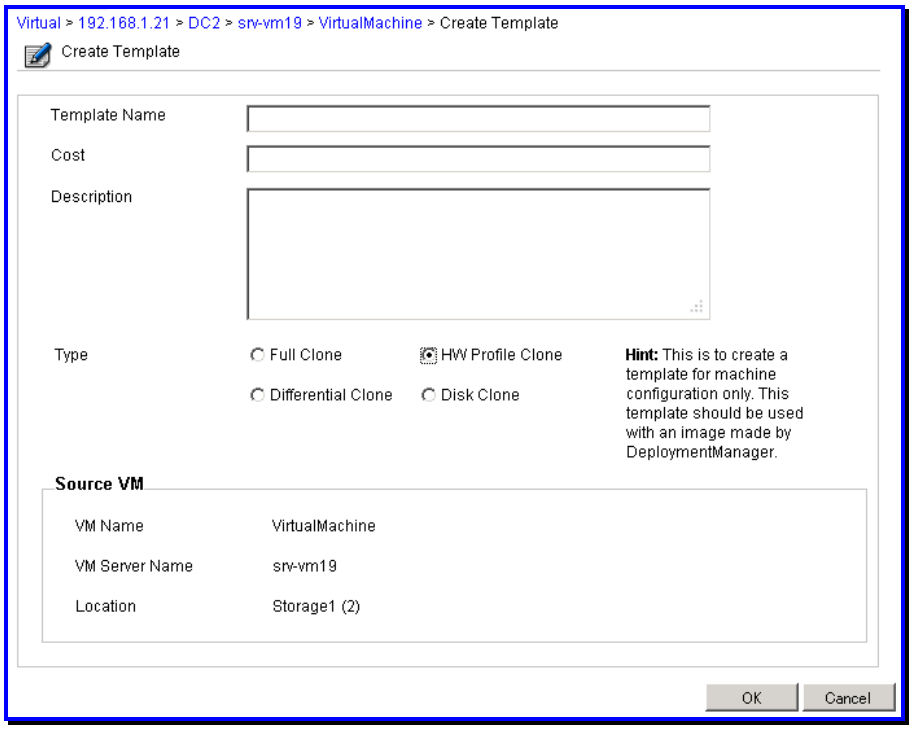
▪ A HW Profile Clone indicates a virtual machine to be a source clone for creating a virtual machine.

▪ A HW Profile Clone template is a concept specific for SystemProvisioning; the template is created not on a virtual machine sever, but on a SigmaSystemCenter management server.

▪ HW Profile Clone template has no image.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the master VM to be a source of the template in the **Virtual** tree.

3. Click **Create Template** on the Configuration menu. **Create Template** appears on the Main Window.



4. Enter a template name for the HW Profile Clone template in the **Template Name** box. (Required)
5. Enter a cost value for when creating a virtual machine from a HW Profile Clone template in the **Cost** box. (Required)
6. Select **HW Profile Clone** as **Type**.
7. Click **OK**.
8. Click the icon of a virtual machine server to which the master VM belongs in the **Virtual** tree.
9. Details of the virtual machine server appear on the Main Window.
10. Confirm that the created template is added under **Template List**.

6.2.3. Creating a Differential Clone Template

After creating a master VM of the VMware environment, Xen environment, Hyper-V environment or KVM environment, create a Differential Clone template. SigmaSystemCenter displays different windows according to whether a Differential Clone template is created from a virtual machine on VMware vCenter Server or not. To create a Differential Clone template, perform the following procedure:

Note:

▪ A Differential Clone template indicates a virtual machine to which SystemProvisioning refers when creating virtual machines.

▪ A Differential Clone template is a concept specific for SystemProvisioning; the template is created not on a virtual machine sever, but on a SigmaSystemCenter management server.

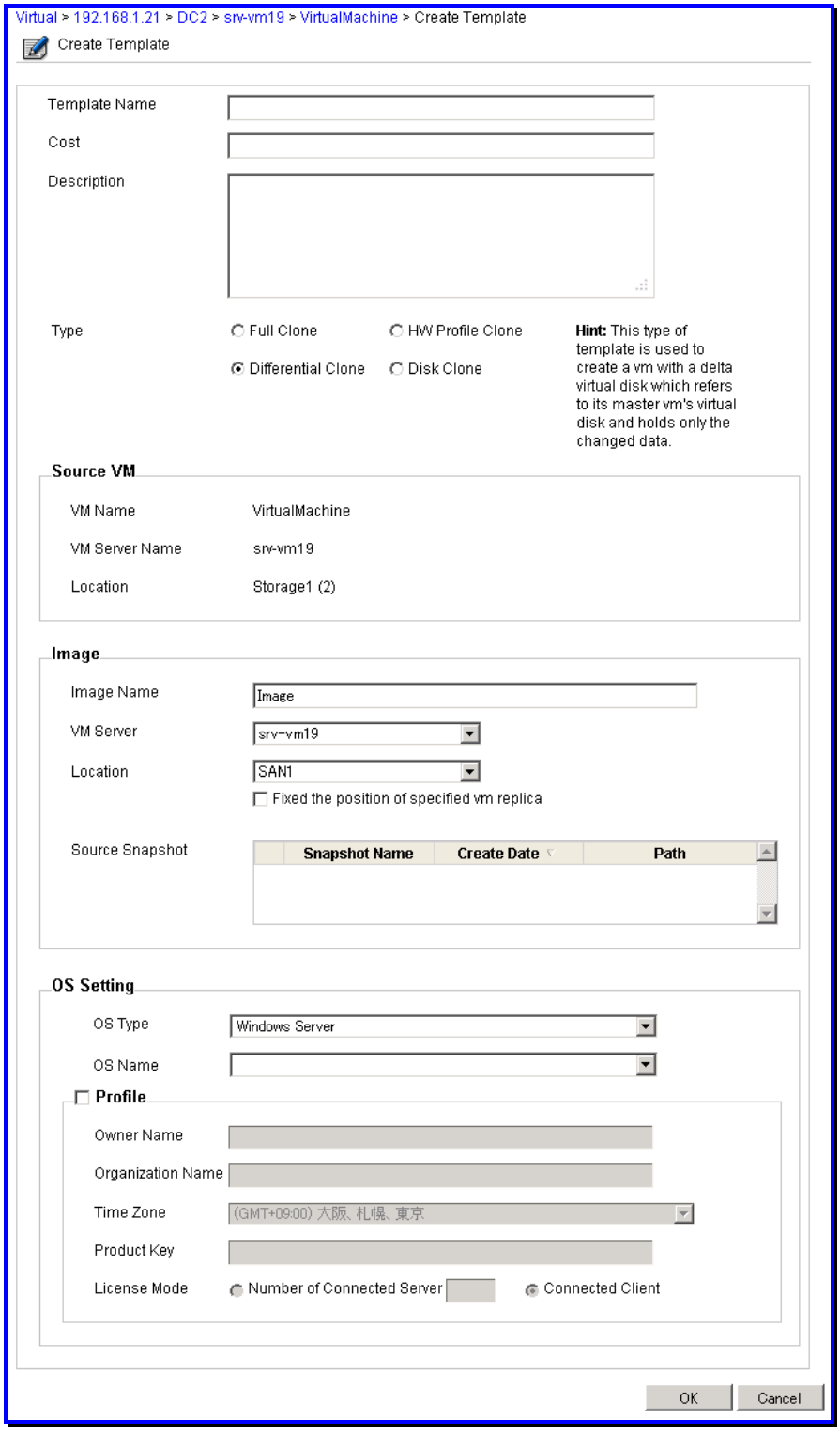
▪ A Differential Clone template cannot be created if a master VM has no snapshots. Create a snapshot before creating templates. For creating snapshots, see Subsection 6.2.5, "Creating a Snapshot." However, for the KVM environment, create the template without a snapshot on the master VM because creating snapshot is not supported in the KVM environment.

▪ In the VMware environment of which version is the vSphere 4 or earlier, Differential Clone templates cannot be created.

▪ In the Xen environment, standalone ESXi, Hyper-V environment and KVM environment, Sysprep is executed on an image (replica VM) of a Differential Clone template. Therefore, do not execute any operations including *start* towards the image.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the master VM to be a source of the template in the **Virtual** tree.

3. Click **Create Template** on the Configuration menu. **Create Template** appears on the Main Window.



4. Enter a template name for the Differential Clone template in the **Template Name** box. (Required)
5. Enter a cost value for when creating a virtual machine from a Differential Clone template in the **Cost** box. (Required)
6. Select **Differential Clone** as **Type**.
7. Enter an image name used by a Differential Clone template in the **Image Name** box. (Required)

Note: If the number of characters of the image name and that of master VM name in total exceeds 53, rename either name to be within 53 in total.

8. Select the destination virtual machine server in the **VM Server** list.
9. Select the destination datastore in the **Location** list.
10. To fix the replica VM to the specified location without creating an edge cache replica, select the **Fixed the position of specified vm replica** check box.
11. In the **Source Snapshot**, select a snapshot that is to be the source of the image (replica VM). When creating a template on a virtual machine that is not on VMware vCenter Server environment, skip to the procedure 19.
12. For the vCenter Server environment, select the OS type of the virtual machine in the **OS Type** list. The **OS Name** list is optional.

    For the other environments, this procedure is unnecessary. Skip to the next procedure.
13. The profile information relevant to the OS can be given to the template. To give the profile information, select the **Profile** check box, and follow the procedure below. If it is unnecessary, skip to the procedure 19.
14. If the **OS Type** is Windows Server / Windows Client, enter a name of the OS license owner in the **Owner Name** box.
15. If the **OS Type** is Windows Server / Windows Client, enter an organization name of the OS license in the **Organization Name** box.
16. If the **OS Type** is Windows Server / Windows Client, select the time zone in the **Time Zone** list.
17. If the **OS Type** is Windows Server / Windows Client, enter a product key of the OS in the **Product Key** box.
18. If the **OS Type** is Windows Server, select the license mode as **License Mode**. If you select **Number of Connected Server**, enter the number of servers to connect at the same time in the text box.
19. Click **OK**.
20. Confirm that the created template is added under **Template List**.

6.2.4. Creating a Disk Clone Template

After creating a master VM of the VMware environment (a standalone ESXi is recommended), Xen environment, Hyper-V environment or KVM environment, create a Disk Clone template with the following procedure:

Note:

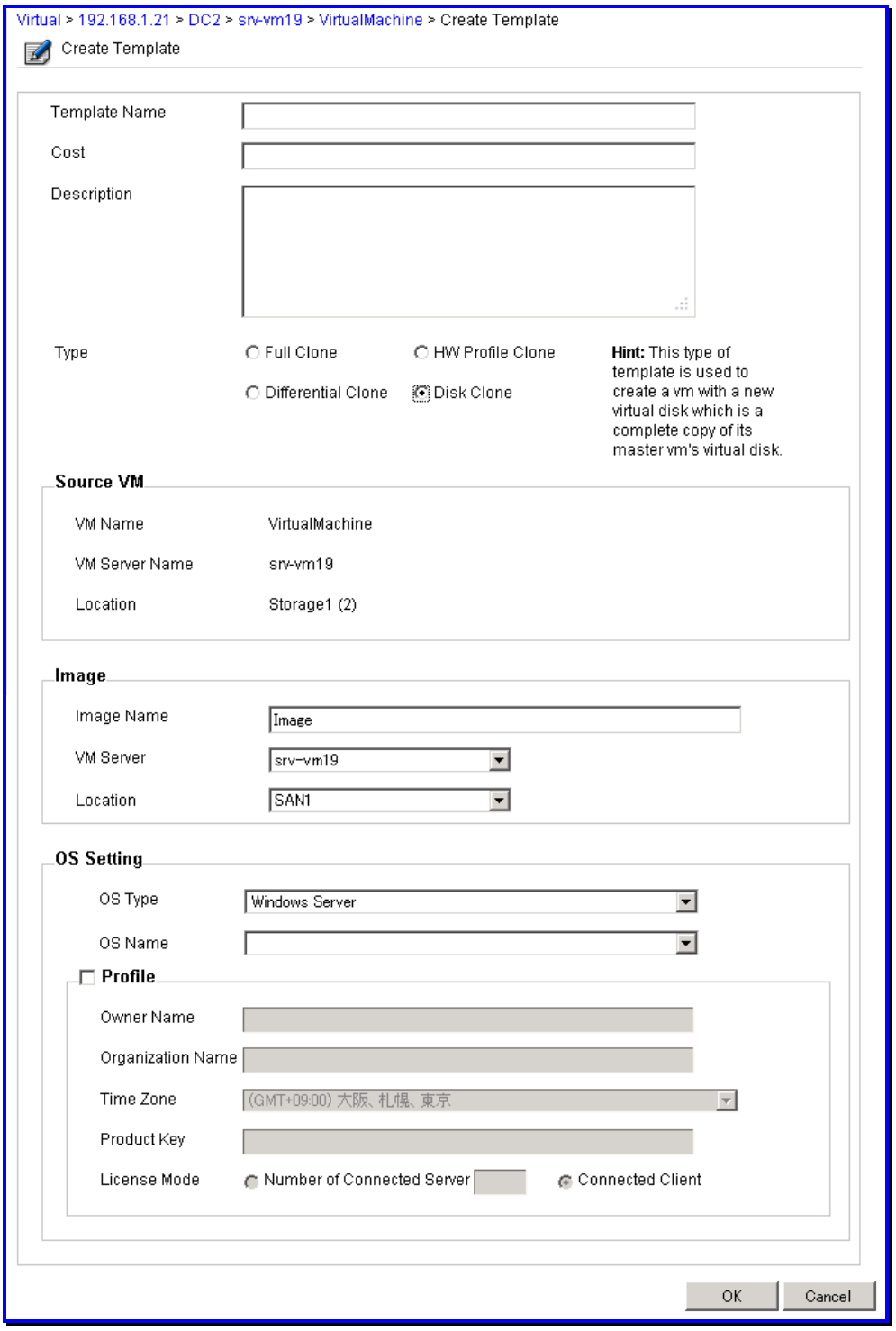
▪ A Disk Clone template indicates a virtual machine to which SystemProvisioning refers when creating virtual machines.

▪ A Disk Clone template is a concept specific for SystemProvisioning; the template is created not on a virtual machine sever, but on a SigmaSystemCenter management server.

▪ In the Xen environment, the Standalone ESXi environment the Hyper-V environment, or the KVM environment, Sysprep is executed on an image (replica VM) of a Differential Clone template. Therefore, do not execute any operations including *start* towards the image.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the master VM to be a source of the template in the **Virtual** tree.

3. Click **Create Template** on the Configuration menu. **Create Template** appears on the Main Window.



4. Enter a template name for the HW Profile Clone template in the **Template Name** box. (Required)

5. Enter a cost value for when creating a virtual machine from a Disk Clone template in the **Cost** box. (Required)
6. Select **Disk Clone** as **Type**.
7. Enter an image name used by a Disk Clone template in the **Image Name** box. (Required)

Note: If the number of characters of the image name and that of master VM name in total exceeds 53, rename either name to be within 53 in total.

8. Select a destination virtual machine server in the **VM Server** list.
9. Select a destination datastore in the **Location** list.
10. For the vCenter Server environment, select the OS type of the virtual machine in the **OS Type** list. The **OS Name** list is optional. For the other environments, this procedure is unnecessary. Skip to the next procedure.
11. The profile information relevant to the OS can be given to the template. To give the profile information, select the **Profile** check box, and follow the procedure below. If it is unnecessary, skip to the procedure 17.
12. If the **OS Type** is Windows Server / Windows Client, enter a name of the OS license owner in the **Owner Name** box.
13. If the **OS Type** is Windows Server / Windows Client, enter an organization name of the OS license in the **Organization Name** box.
14. If the **OS Type** is Windows Server / Windows Client, select the time zone in the **Time Zone** list.
15. If the **OS Type** is Windows Server / Windows Client, enter a product key of the OS in the **Product Key** box.
16. If the **OS Type** is Windows Server, select the license mode as **License Mode**. If you select **Number of Connected Server**, enter the number of servers to connect at the same time in the text box.
17. Click **OK**.
18. Confirm that the created template is added under **Template List**.

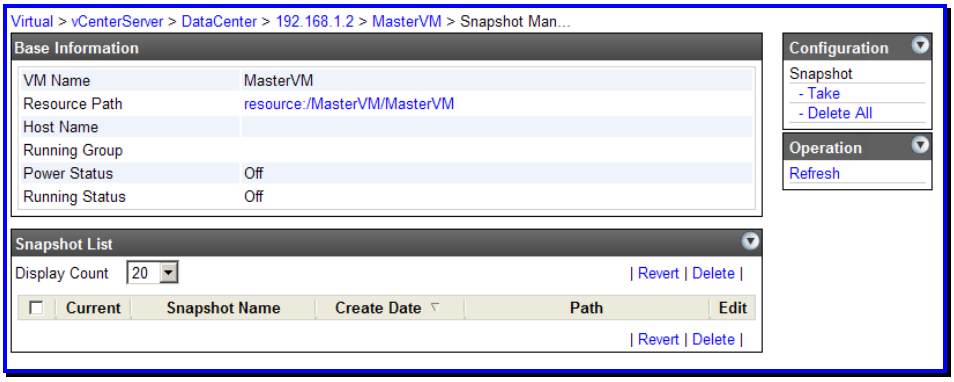
6.2.5. Creating a Snapshot

A snapshot that saves the state of a virtual machine can be created from the Web Console.

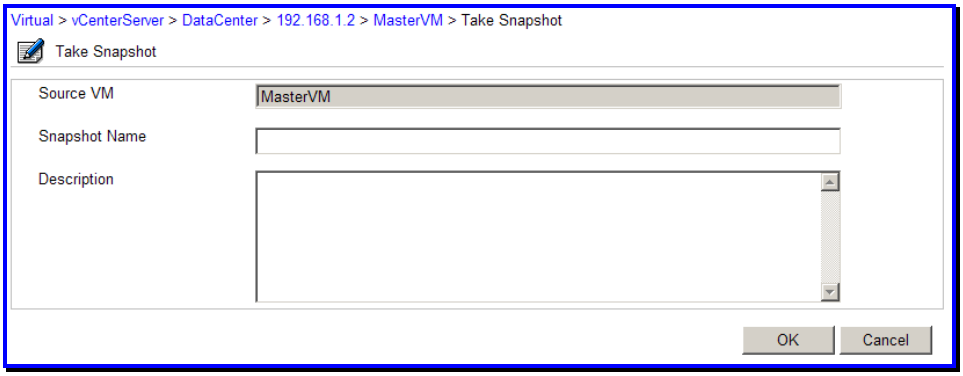
To create a Differential Clone template and an image, a snapshot that is created when the master VM is powered off is required. To create a snapshot, perform the following procedure.

Reference: For the detail of snapshot management, see Section 2.8, "Snapshot Management" in *SigmaSystemCenter Overview Reference Guide*.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the destination virtual machine on the **Virtual** tree.
3. Click the **Snapshot Management** on the Configuration menu.
4. Details of the snapshot appear on the Main Window.



5. Click the **Take** under the **Snapshot**, located on the Configurations menu. **Take Snapshot** appears on the Main Window.



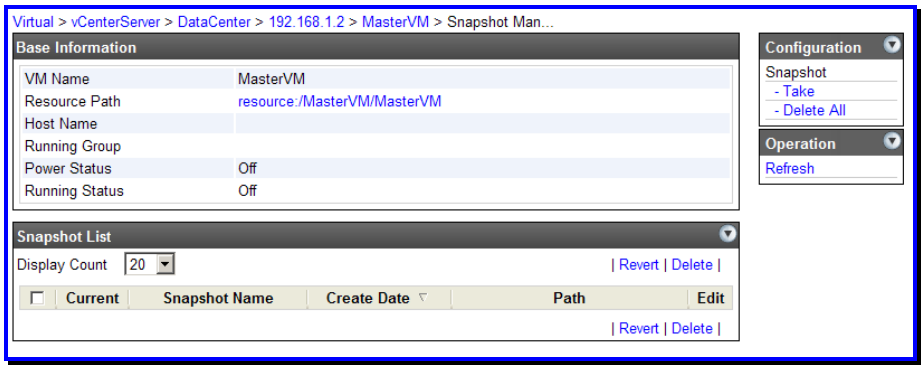
6. Enter a snapshot name in the **Snapshot Name** box. (Required)
7. Click **OK**.
8. Confirm that the created snapshot is added to the **Snapshot List**.

6.2.6. Reverting a Snapshot

A virtual machine can be reverted to a stored snapshot from the Web Console.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the virtual machine to revert to a stored snapshot on the **Virtual** tree.

3. Click **Snapshot Management** on the Configuration menu. **Snapshot Management** window appears on the Main Window.



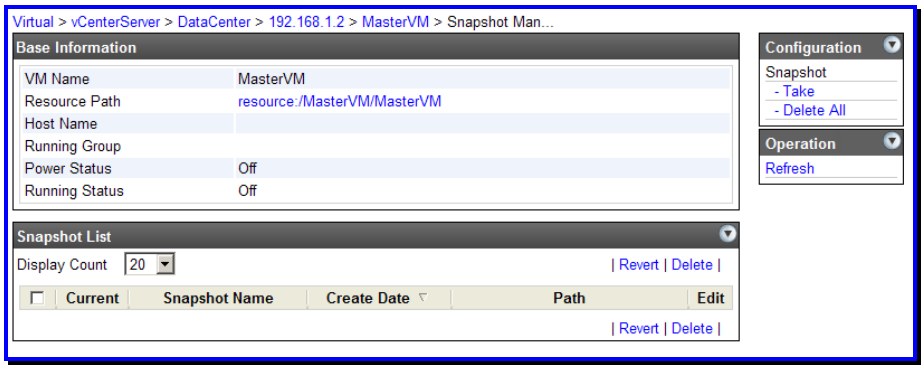
4. Select a check box of the snapshot to revert to on the **Snapshot List** (Required).
5. Click **Revert** of the Action menu.

6.2.7. Deleting a Snapshot

A snapshot that stores the condition of a virtual machine can be deleted using the Web Console.

Note: If a virtual machine has many snapshots, to delete them might take longer than usual.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the virtual machine to delete its snapshot on the **Virtual** tree.
3. Click **Snapshot Management** on the Configuration menu. **Snapshot Management** window appears on the Main Window.



4. Select a check box of a snapshot to delete on the **Snapshot List**. (Required)

5. Click **Delete** of the Action menu.

Note: You can delete all of the snapshots at once by clicking **Delete All** on the **Snapshot** of the Configuration menu on the **Snapshot Management** window.

6.2.8. How to Use the Template Created in the Virtual Environment in SigmaSystemCenter

This subsection explains how to use the templates created in the VMware vCenter Server and Citrix Xen PoolMaster in SigmaSystemCenter.

1. Click the **Management** on the Title bar to switch to the **Management** view.
2. Click the **Subsystem** on the **Management** tree.
3. Select the check box of the virtual environment where the template exists, and click **Collect**.
4. Click **Monitor** on the Title Bar to switch to the **Monitor** view.
5. Click the Job on the Monitor tree, and confirm that the collection finished properly.

Note: For the Xen environment, the following procedures are unnecessary.

6. Click the **Resource** on the Title bar to switch to the **Resource** view.
7. Click the template collected from the **Software** on the **Resource** tree.
8. Click **Edit** on the Configuration menu.
9. Enter a cost value for the creating virtual machine in the **Cost** box.
10. Select the OS type of the template in the **OS Type** list.
11. To give the profile information to the template, select the **Profile** check box, and configure the profile information.

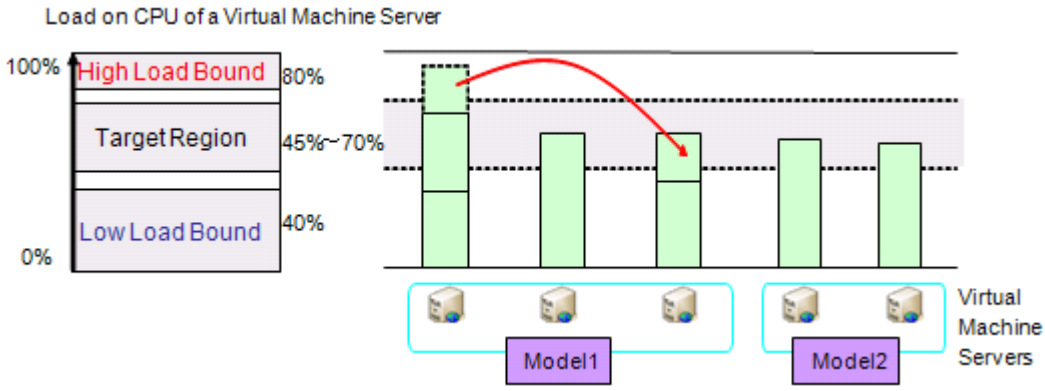
6.3. Configuring to Use the VM Optimized Placement Feature

This section provides the explanation of how to configure the VM Optimized Placement feature. For more details of the feature and functionality, see Subsection 2.11.2, "VM Optimized Placement" in *SigmaSystemCenter Overview Reference Guide*.

6.3.1. Managing a Virtual Machine Server in a Group

Migration, the functionality of SystemProvisioning, can be performed between active virtual machine servers in the same VM Server model. To use a functionality which Migration of a virtual machine, such as the load balancing and power saving for a virtual machine server, and restoring the failure by Failover when a failure occurred on a virtual machine server, register the target virtual machine servers in one VM Server model.

The following figure is an example of load balancing of a virtual machine.

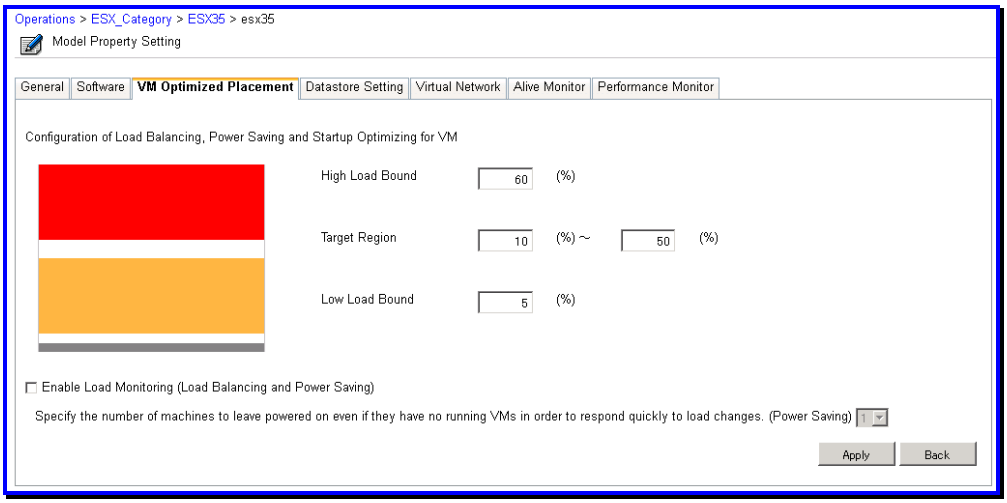


SystemProvisioning can keep loads in a group moderate by monitoring the load condition of virtual machine servers and performing Migration from a virtual machine server which has heavy loads to a virtual machine server which does not have many loads automatically. Register virtual machine servers that you want to set as a target of load balancing in one VM Server model and activate them. An active virtual machine server in another VM Server model cannot be the target of Migration.

6.3.2. Configuring the VM Server Model

Configure a VM Server model for a group of virtual machine servers. For how to configure a model, see Section 5.5, "Configuring Model Properties (For a Physical Machine)." This subsection explains the VM Optimized Placement tab of the Model Property Setting which you need to configure to use the VM Optimized Placement feature.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to configure in the **Operations** tree.
3. Click **Property** on the Configuration menu.
4. **Group Property Setting** appears on the Main Window. Click the **Model** tab.
5. Click the **Property** of the model to configure under **Model List**.
6. **Model Property Setting** appears on the Main Window. Click the **VM Optimized Placement** tab.



7. In the **High Load Bound** box, enter an integral value of the high load bound (%) of the virtual machine server (Load Balancing).
8. In the **Target Region** boxes, enter integral values of target region (%－%) of the virtual machine server load (Load Balancing, Power Saving and Startup Optimizing for VM).
9. In the **Low Load Bound** box, enter an integral value of the low load bound (%) of the virtual machine server (Power Saving).
10. To use Load Balancing or Power Saving, select the **Enable Load Monitoring (Load Balancing and Power Saving)** check box. By enabling load monitoring, events of detecting high load or low load can be reported.
11. To use Power Saving, select the number of spare machines on the **Specify the number of machine to leave powered on even if they have no running VMs in order to respond quickly to load changes. (Power Saving)** list as necessary. By setting the number of spare machines to "1", a virtual machine can be moved quickly if load-up or failure occur on the machine ("1" or bigger is recommended).
12. Click **Apply**.

6.3.3. Monitoring the Performance Data

System Monitor - Performance Monitoring Services monitors the performance status of virtual machine servers and send alert to SystemProvisioning when the high load or low load condition of CPU occurs. The alert triggers the VM Optimized Placement feature's workings.

To make System Monitor - Performance Monitoring Services monitor the CPU load condition of a virtual machine server, enable the performance data collection on the group or the model at which the virtual machine server is running, and then, specify *Standard Monitoring Profile* or *Physical Machine Monitoring Profile* as the monitoring profile.

For how to set the monitoring profile on the Group Property Setting, see Subsection 5.4.14, "Configuring Settings on the Performance Monitor Tab." For how to set the monitoring profile on the Model Property Setting of a virtual machine server, see Subsection 5.5.5, "Configuring Settings on the Performance Monitor Tab."

For details of the monitoring profile, see Appendix A, "Monitoring Profile."

6.3.4. Enabling the Power Saving

To use the power saving of the VM Optimized Placement, configure the *Standard Policy (VM Server power save)* for the target group of virtual machine servers. If you want SigmaSystemCenter to manage virtual machine servers in a certain mode, such as operating the virtual machine servers saving their power at night that the used number of virtual machines decreases, switch the policies configured to the group for day and night using the commands that SigmaSystemCenter provides.

7. Operations for Managing a Machine in the Operations View

This chapter explains the operations to manage a machine in the Operations view in SigmaSystemCenter.

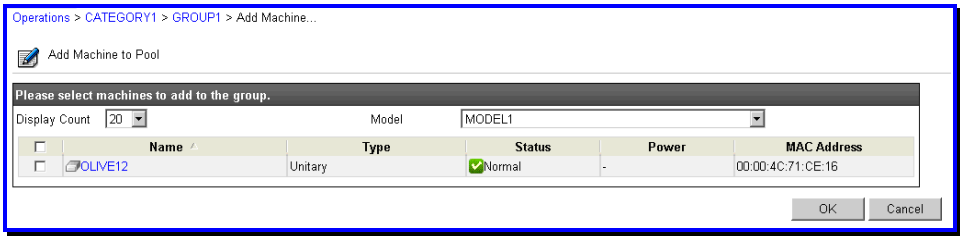
This chapter contains the following sections:

- 7.1 Adding a Machine to a Pool 326
- 7.2 Activating a Machine in a Group 327
- 7.3 Release Resource 335
- 7.4 Delete Virtual Machine 337
- 7.5 Scale Out 339
- 7.6 Scale In 341
- 7.7 Changing the Usage of a Machine 343
- 7.8 Replacing a Machine 345
- 7.9 Reconfiguring a Virtual Machine 348
- 7.10 Distributing Specified Software to a Machine 351
- 7.11 Redistributing Software 353
- 7.12 Change Configuration 355

7.1. Adding a Machine to a Pool

This section provides the procedure to add a machine in standby in an operation group pool. A machine added to a pool of an operation group becomes a pool machine for the operation group. To add a machine to a pool, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which you want to add a pool machine in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click **Add Machine to Pool** on the Operation menu.
5. **Add Machine to Pool** appears on the Main Window. Select the model in the **Model** list.



6. Select the check box of the machine to add to a pool.
7. Click **OK**.
8. A confirmation message appears.
9. Click **OK**.
10. The machine is added to the pool and the added machine appears under **Group Pool**.

7.2. Activating a Machine in a Group

In SigmaSystemCenter, a machine is added to the group and activated by specifying the host that is registered in a group and allocating a resource. This section provides how to activate a machine in a group.

7.2.1. Registering a Master Machine

In SigmaSystemCenter, a machine which configuration of network settings or installation of software has completed and which can be operated instantly is called a *master machine*. In addition, to activate a master machine in a group without distributing software or configuring the network settings is called *Register Master Machine*. Preparation and the registration procedure are as follows:

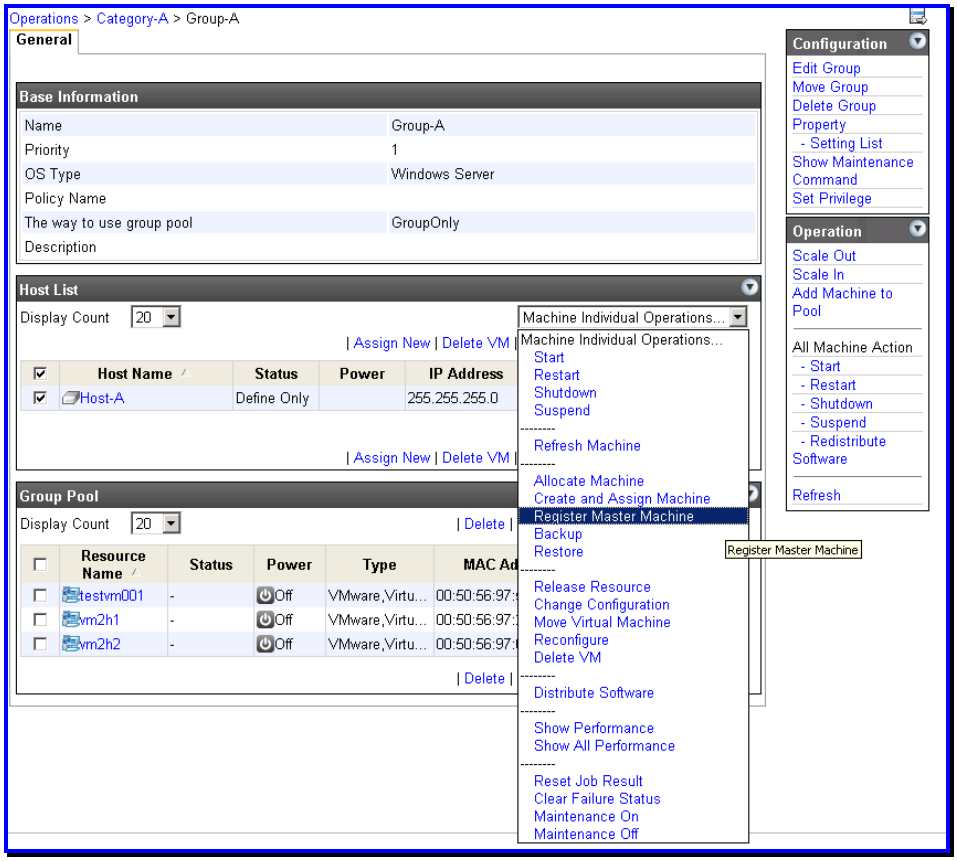
- Preparation

  Configure the host name and the network information of the master machine to the host beforehand.

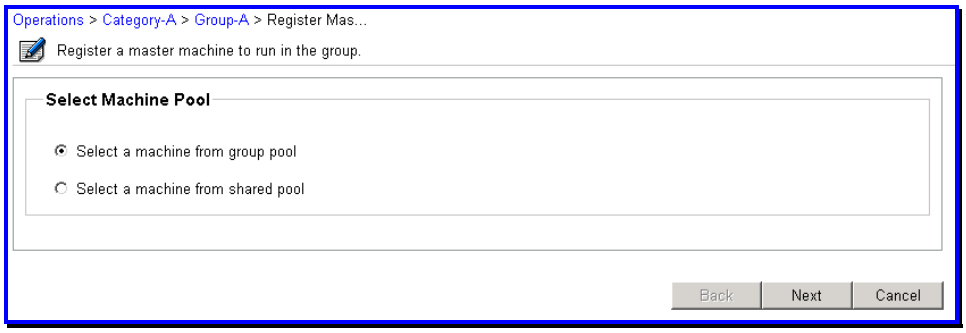
- Registration Procedure

  1. Click **Operations** on the Title bar to switch to the **Operations** view.
  2. Click the icon of the group to which you want to register a master machine in the **Operations** tree.
  3. Details of the group appear on the Main Window.
  4. Select the check box of the host to which you want to register a master machine under **Host List**.

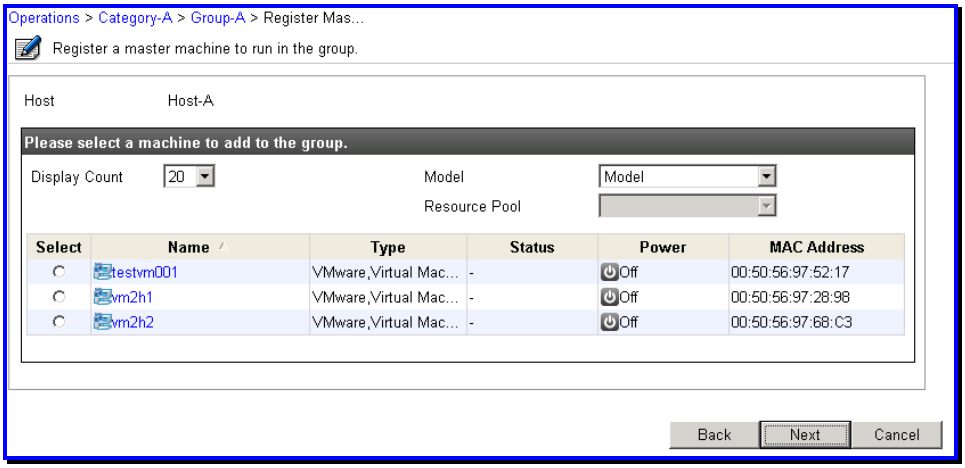
5. Select **Register Master Machine** of the Action menu.



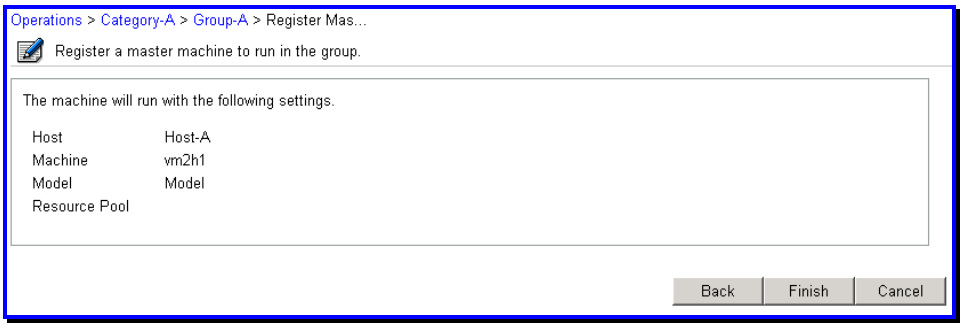
6. **Register a master machine to run in the group** appears on the Main Window. Select the pool where the machine that is to be registered as the master machine exists.
7. Click **Next**. If you selected the **Select a machine from shared pool**, skip to the procedure 11.


Operations > Category-A > Group-A > Register Mas...
Register a master machine to run in the group.
Select Machine Pool
Select a machine from group pool
Select a machine from shared pool
Back
Next
Cancel

8. If you selected the **Select a machine from group pool** in the procedure 6, **Register a master machine to run in the group** appears on the Main Window. Select a model in the **Model** list.



9. Select the master machine to add to the group.
10. Click **Next**.
11. The confirmation of the machine to register appears on the Main Window..



12. Click **Finish**.
13. When registering the master machine finishes, the registered machine appears under **Host List**.

7.2.2. Allocating a Resource to a Host

Allocate Machine is the operation that activates a machine in a group with distributing software or configuring the network settings. For a virtual machine, Allocate Machine customizes an already created virtual machine, and then adds it to a group. Preparation and the procedure of Allocate Machine are as follows:

Note:

・Allocate Machine can be executed to the virtual machine created with Full Clone (in the vCenter Server environment) , Differential Clone (in the vCenter Server environment), Disk Clone (in the vCenter Server environment) or HW Profile Clone.

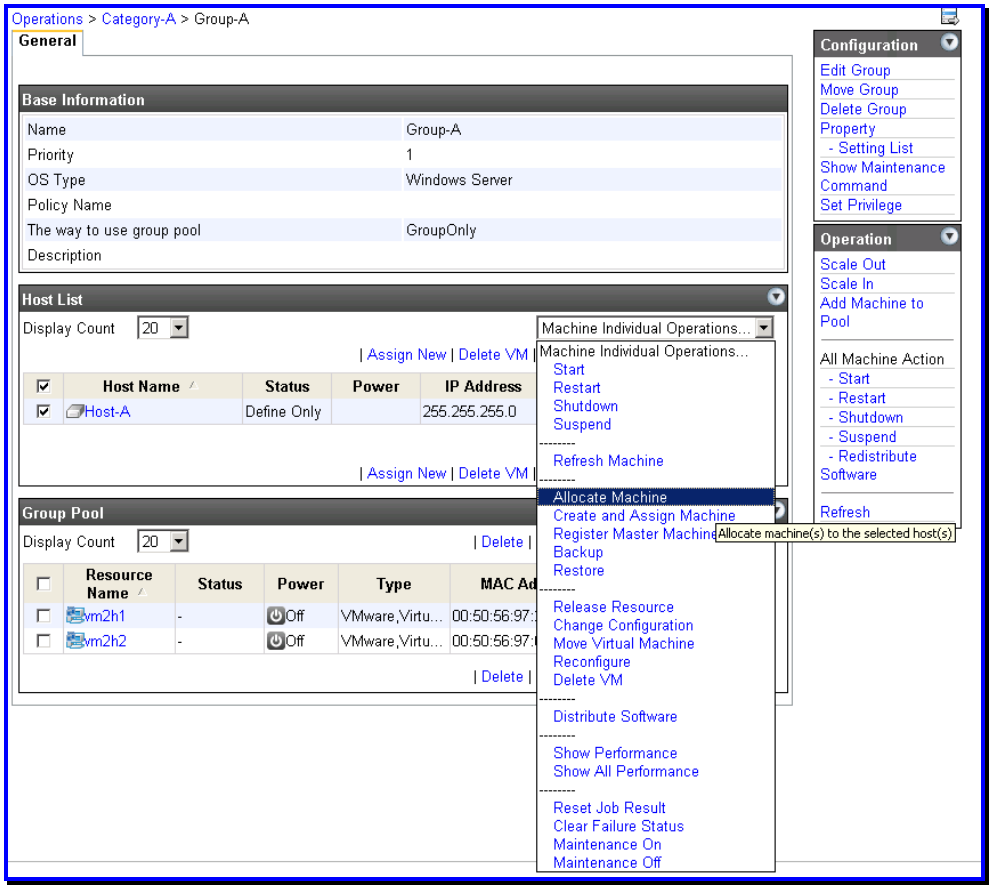
・If Allocate Machine, and then Script Installation of ESX are executed, the ESX is registered with a name composed of *Host Name* + *Domain Suffix* in vCenter Server. So, to use this functionality, the ESX name must be resolved.

◆ Preparation

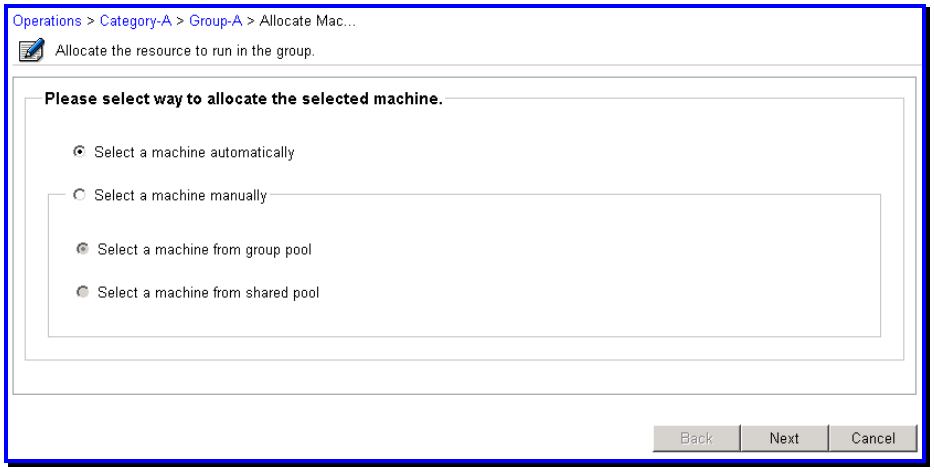
Configure the host name and the network information of the master machine to the host beforehand.

◆ Registration Procedure

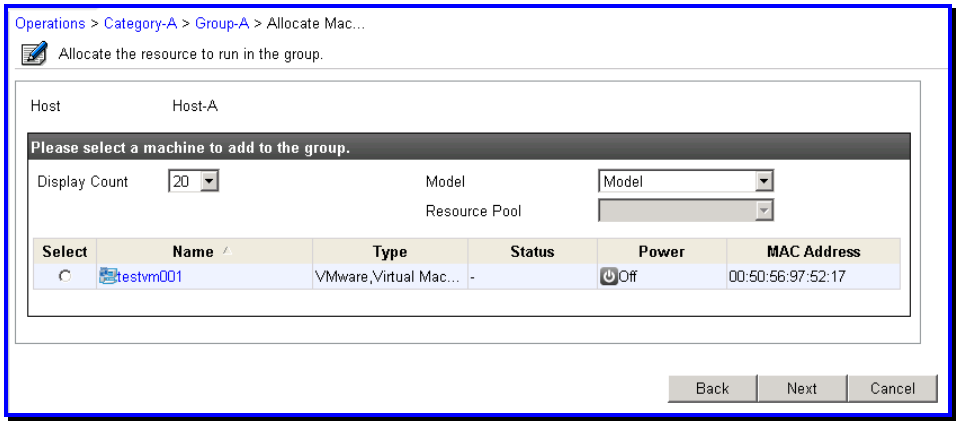
1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which the machine is to be registered in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the host to allocate a resource under **Host List**.
5. Select **Allocate Machine** of the Action menu.



6. **Allocate the resource to run in the group** appears on the Main Window. Select the assign method.

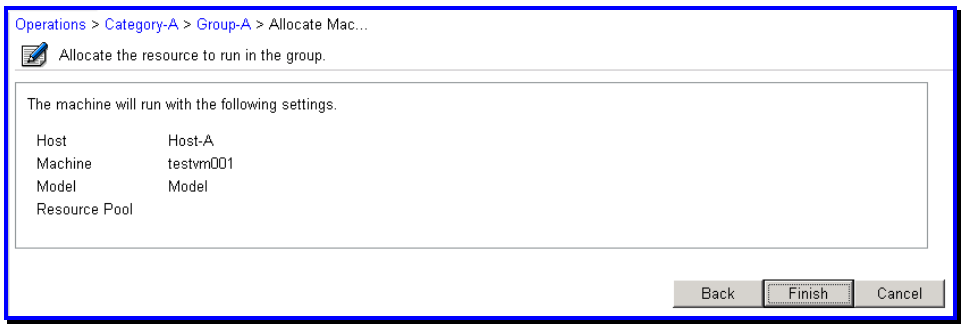

Operations > Category-A > Group-A > Allocate Mac...
Allocate the resource to run in the group.
Please select way to allocate the selected machine.
Select a machine automatically
Select a machine manually
Select a machine from group pool
Select a machine from shared pool
Back
Next
Cancel

7. Click **Next**.
8. If you select the automation method, skip to the procedure 11. If you selected the manual method, **Allocate the resource to run in the group** appears on the Main Window.



9. Select the machine to add.
10. Click **Next**.

11. The confirmation of assigning a machine appears on the Main Window.



12. Click **Finish**.
13. When allocating the resource finishes, the added machine appears under **Host List**.

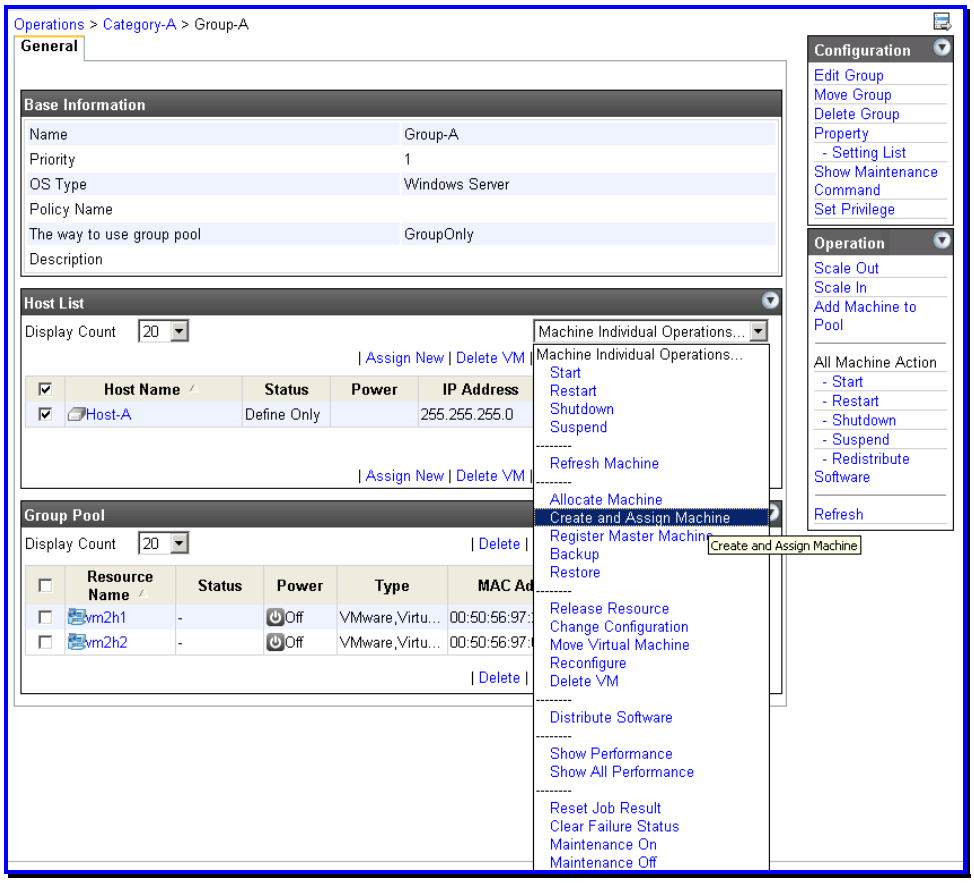
7.2.3. Creating a Virtual Machine and Activating the Machine in a Group

To create a virtual machine and activate the machine in a group, perform *Create and Assign Machine*. Preparation and the procedure are as follows:

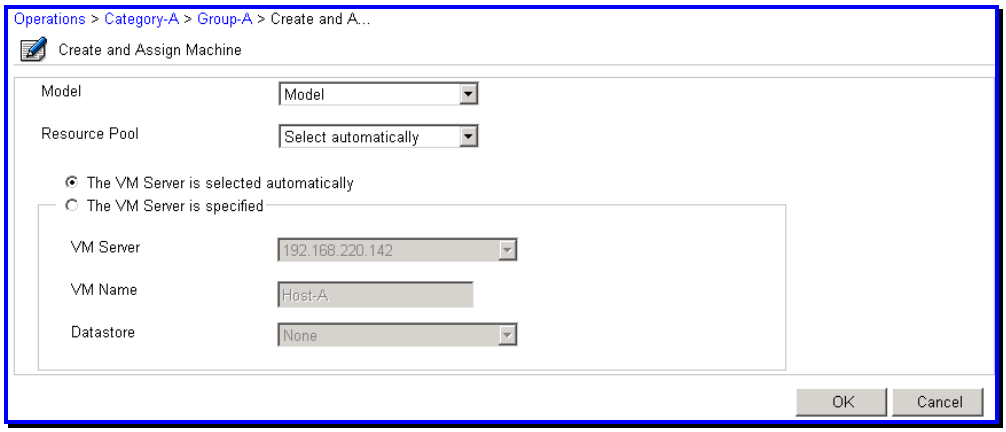
Note: For the procedure and notes of creating a virtual machine, see Subsection 3.7.5, "Registering a Virtual Machine to DPM."

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which the machine to be registered in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box(es) of the host(s) to which the virtual machine information is configured under **Host List**. Multiple selections allowed.

5. Select **Create and Assign Machine** of the Action menu.



6. **Create and Assign Machine** appears on the Main Window.



7. Select the model on which a virtual machine to be created. Create the virtual machine with the template specified on the **Software** tab of the **Model Property Setting**.

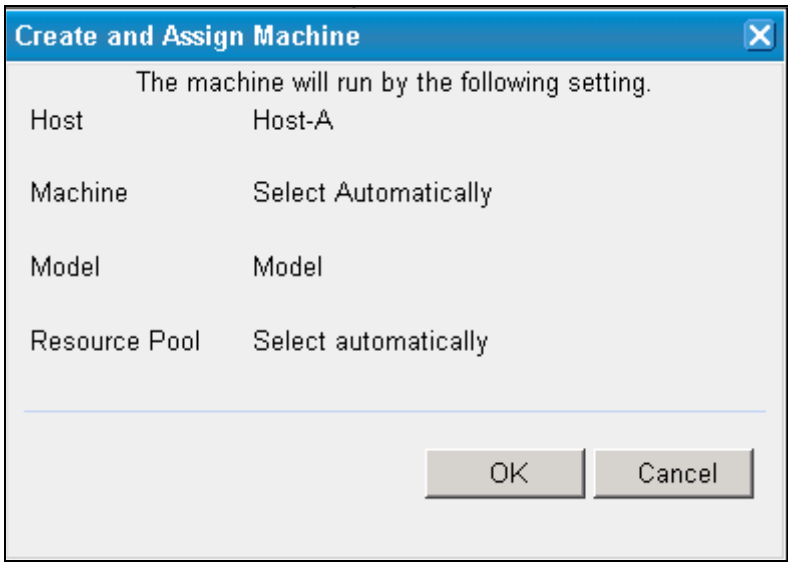
In Windows 2003 or earlier, the administrator password is changed to what is set in the host setting or the host profile only when the administrator password of the template is set to null; otherwise, the administrator password setting in the host setting or the host profile is ignored and the password is not changed.

In Windows Vista or later, the administrator password is changed to what is set in the host setting or the host profile.

8. Select the resource pool to create a virtual machine in the **Resource Pool** list. If a resource pool is selected here, a virtual machine is created on the virtual machine server of the selected resource pool.
9. Select the selecting method of the virtual machine server. To have SigmaSystemCenter select the virtual machine server automatically, skip to the procedure 13.
10. To specify the virtual machine server, select the virtual machine server in the **VM Server** list.
11. Enter the virtual machine name in the **VM Name** box.
12. Select the new datastore in the **Datastore** list. If this item is not selected, SigmaSystemCenter selects the new datastore automatically.

Note: For SigmaSystemCenter's selection criteria for the virtual machine server and datastore, see Subsection 2.11.5, "Selection Criteria for Destination Virtual Machine Servers and Datastores" in *SigmaSystemCenter Overview Reference Guide*.

13. Click **OK**.
14. **Create and Assign Machine** dialog box appears.

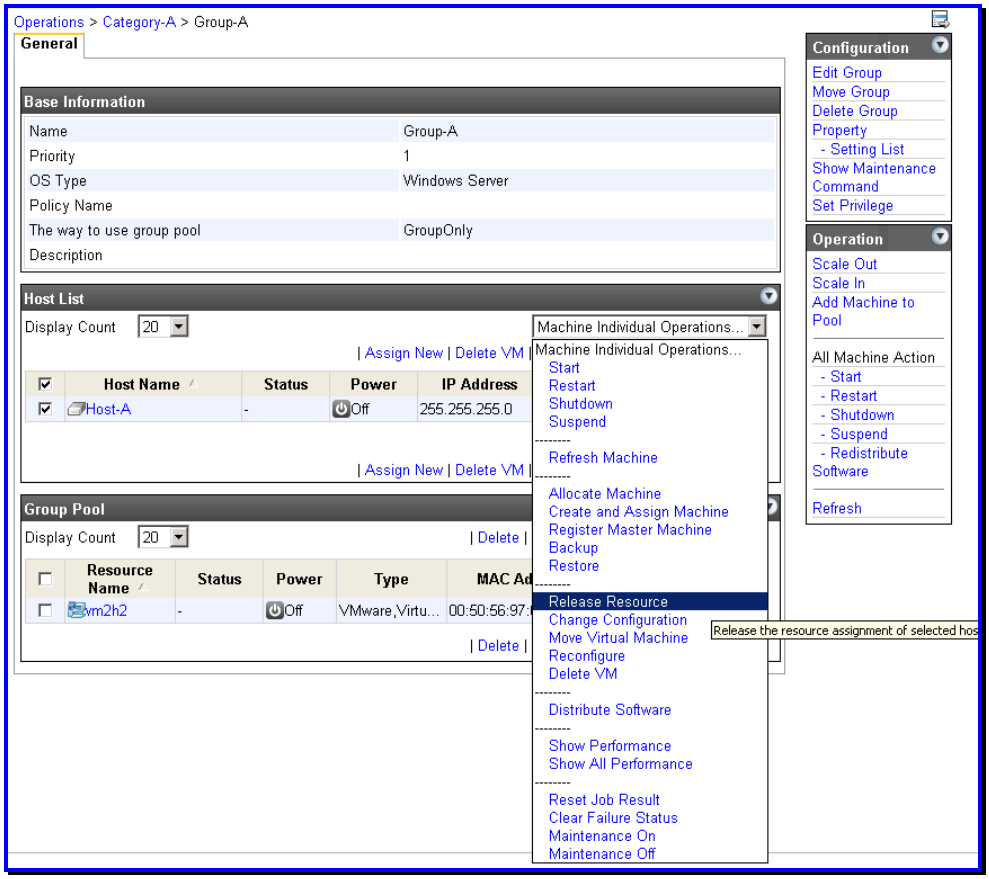


15. Click **OK**.
16. When creating and assigning the machine finishes, the created virtual machine appears under **Host List**.

7.3. Release Resource

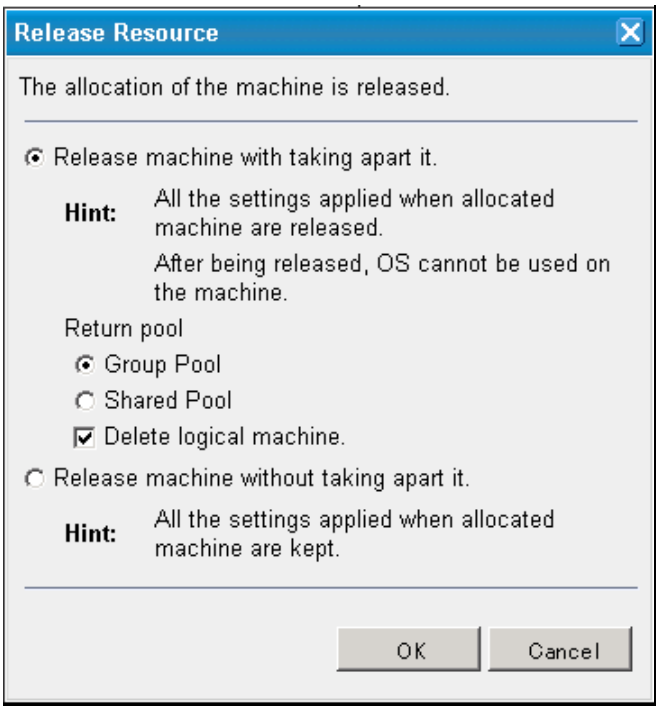
Release Resource is the operation that makes a machine being activated at a group wait in the pool. To execute Release Resource, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target group to release a resource in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the target host to be released under **Host List**.
5. Click the **Release Resource** of the Action menu.

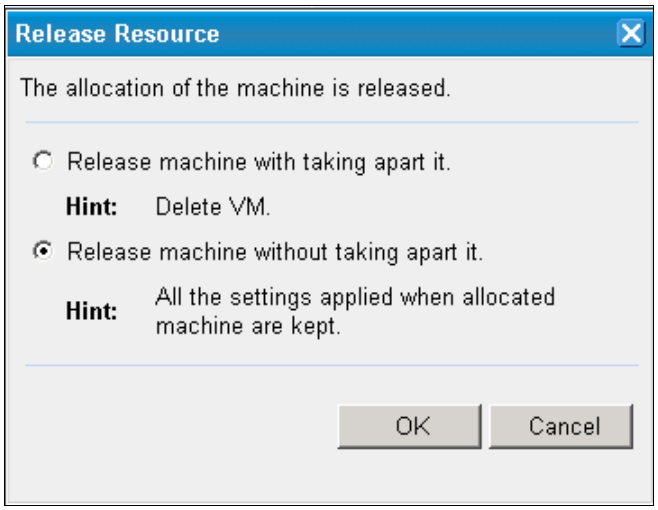


6. **Release Resource** dialog box appears. Select the releasing method.

   - In the case of a physical machine or a virtual machine server


Release Resource
The allocation of the machine is released.
Release machine with taking apart it.
Hint:
All the settings applied when allocated machine are released.
After being released, OS cannot be used on the machine.
Return pool
Group Pool
Shared Pool
Delete logical machine.
Release machine without taking apart it.
Hint:
All the settings applied when allocated machine are kept.
OK
Cancel

   - In the case of a virtual machine

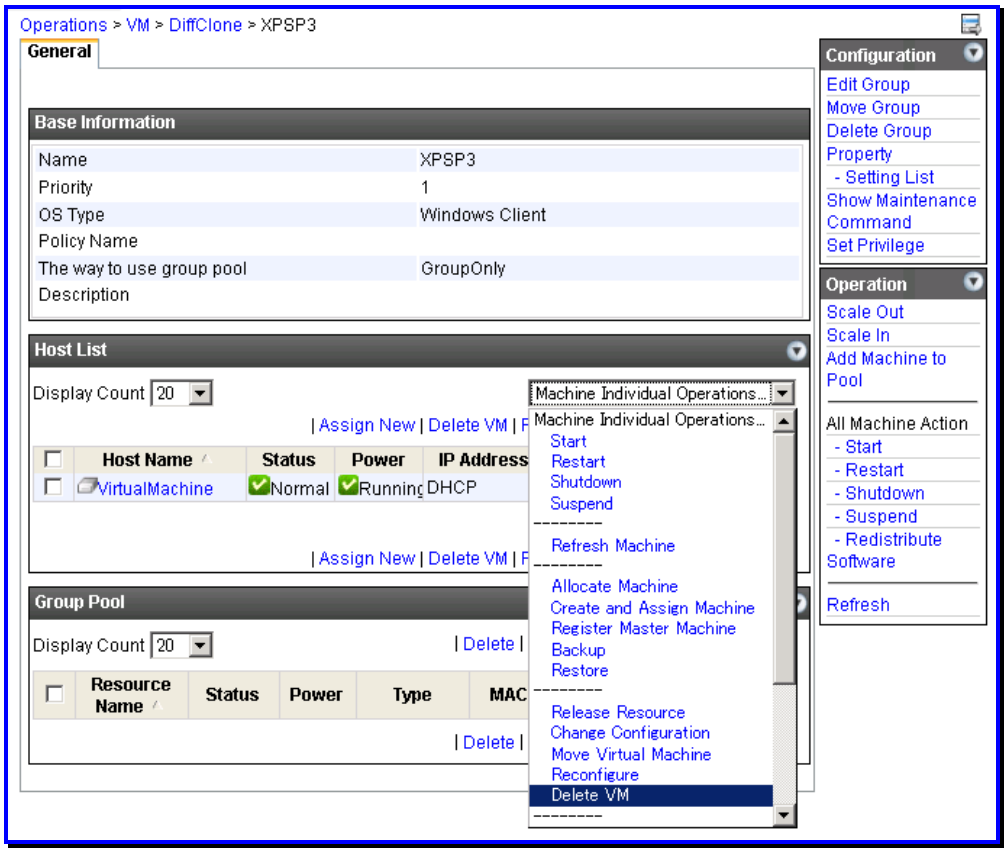


7. Click **OK**.
8. When releasing the resource finishes, **Define Only** appears on the **Status** of the host displayed under the **Host List**.

7.4. Delete Virtual Machine

To delete a virtual machine, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target group to delete in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the target machine to delete under **Host List**.
5. Click the **Delete Virtual Machine** of the Action menu.



6. **Delete Virtual Machine** dialog box appears. Select whether to delete the disk information or not.

7. Click **OK**.
8. When deleting the virtual machine finishes, **Define only** appears on the **Status** of the host under **Host List**.

Note: To delete a virtual machine managed in the operation group, if the virtual machine server to which the virtual machine is registered is powered OFF, start the virtual machine server, and then, delete the virtual machine. Shut down of the virtual machine server is not executed automatically. After starting the virtual machine server, shut down the virtual machine server manually. If the policy with the Power Saving event setting is applied to the virtual machine server, the virtual machine server will be shut down after the Power Saving event occurs.

7.5. Scale Out

Scale Out is the operation that activates a machine in standby in an operation group pool to improve the system performance if the machine load increases.

If a machine which is activated and the power is not ON exists, the machine is started.

If such a machine does not exist, SigmaSystemCenter starts the pool machine for adding a physical machine. For adding a virtual machine, SigmaSystemCenter creates a virtual machine and activates it in the group.

How the system will work in the Scale Out processing can be configured on the General tab on the Group Property setting.

Preparation and the procedure are as follows:

Note:

▪ Scale Out does not activate a virtual machine server with any virtual machine or template on it.

▪ Scale Out does not support either standalone ESXi or Hyper-V.

◆ Preparation

For a physical machine, set up the managed machine, and make it stand-by in the group pool.

For a virtual machine, register a template to the software of the Group Property so that virtual machines can be created.

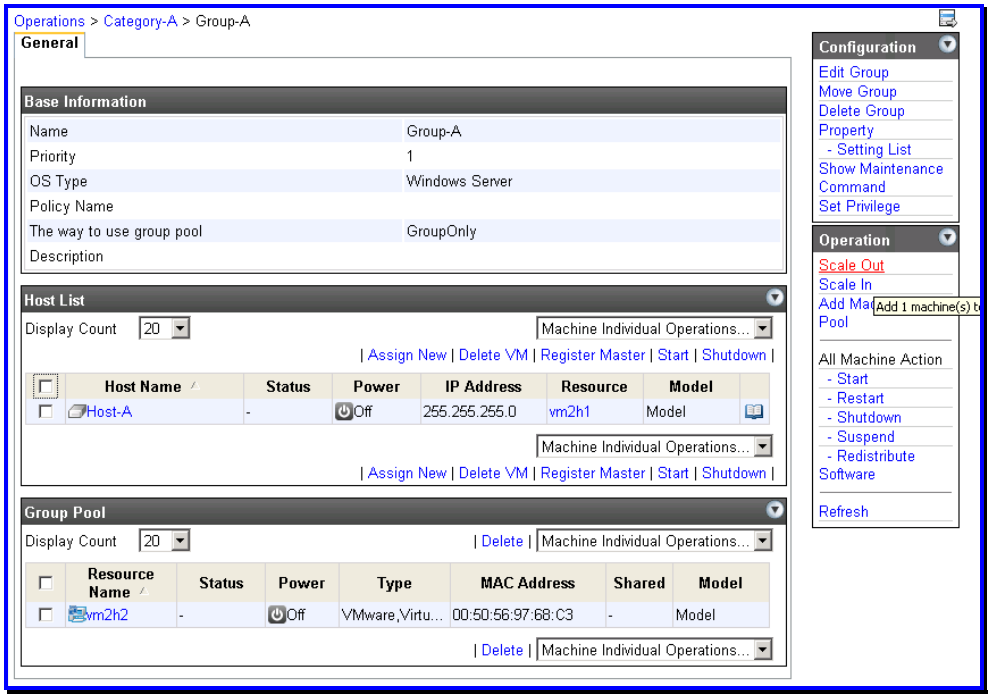
Prepare a host to which the host name and the network setting are configured.

Select the check box of the **Use as Scale-out Group** check box on the **General** tab of the Group Property setting.

◆ Procedure

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to Scale Out in the **Operations** tree.
3. Details of the group appear on the Main Window.

4. Select **Scale Out** on the Operation menu.



5. A confirmation message appears.
6. Click **OK**.
7. When scaling out finishes, the machine added to the group appears under **Host List**. The number which is configured in the **Operation Machine Count At Scale-out** of machines are added at one time.

Note: If the number of machines reaches the max number of active machines configured for the group, Scale Out is not executed any more.

7.6. Scale In

Scale In is the operation that makes an active machine wait in the pool to balance the load if the machine power is oversupplied.

How the system will work in the Scale In processing can be configured on the General tab on the Group Property setting.

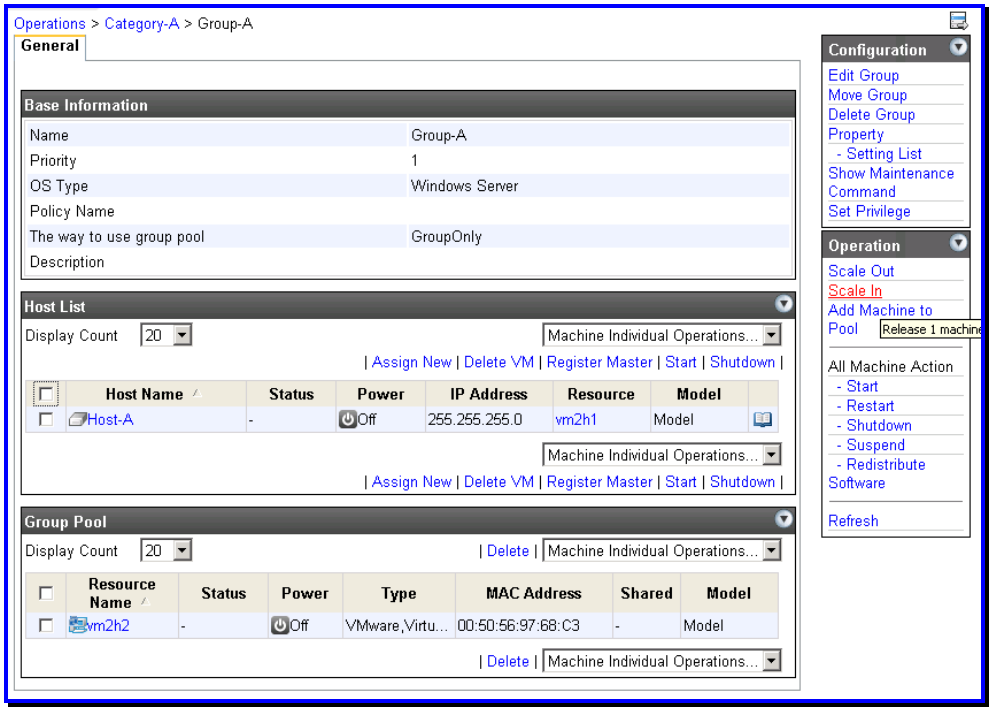
If the **When Scale-in, shut down running machines instead of release with taking apart it** check box is selected, SigmaSystemCenter shuts down a machine which is activated and the power is OFF. The machine remains registered to the operation group. If this check box is not selected, SigmaSystemCenter makes it wait in the pool if the machine is a physical machine; if the machine is a virtual machine, SigmaSystemCenter deletes the machine.

To execute Scale In, perform the following procedure:

Note:

- Scale In does not support either standalone ESXi or Hyper-V.
- Scale In for a virtual machine works as Delete Virtual Machine.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to Scale In in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select **Scale In** on the Operation menu.



5. A confirmation message appears.
6. Click **OK**.
7. When scaling in finishes, the machine made to stand by appears under **Group Pool**. The number which is configured in the **Operation Machine Count At Scale-in** of machines are made wait at one time.

Note: If the number of machines reaches the minimum number of active machines configured for the group, Scale In is not executed any more.

7.7. Changing the Usage of a Machine

Change Machine Usage is the operation that moves the machine activated at an operation group to another group and activates the moved machine again. If there is a possibility that a group's operation load increases, Change Machine Usage diverts other group machines to keep the load balance. Preparation and the procedure are as follows:

Note:

▪ The targets of Change Machine Usage are a physical machine and a virtual machine server. To execute Change Machine Usage on a virtual machine server, the virtual machine server must have no templates. In addition, the virtual machines on the virtual machine server must not be powered ON and not be activated.

▪ Change Machine Usage does not support XenServer, standalone ESXi or Hyper-V.

▪ A virtual machine server activated at the group whose model type is VM Server cannot be moved to the group whose model type is Physical.

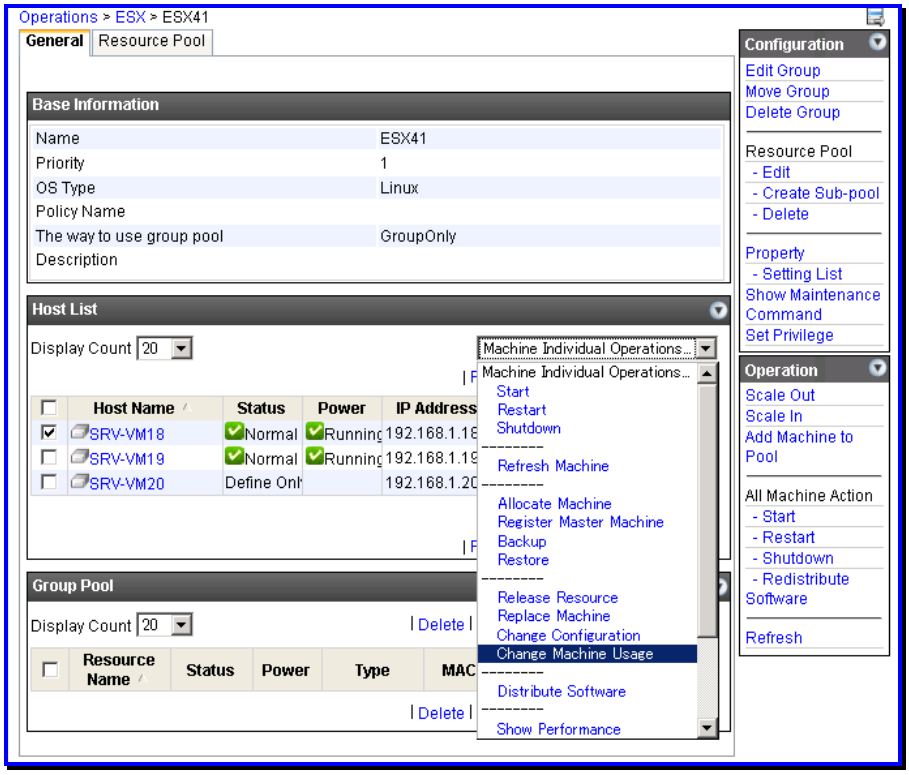
◆ Preparation

Add a target machine to change the usage to both the pool of the group to which the machine now belongs and the pool of the new group to which the machine will belongs.

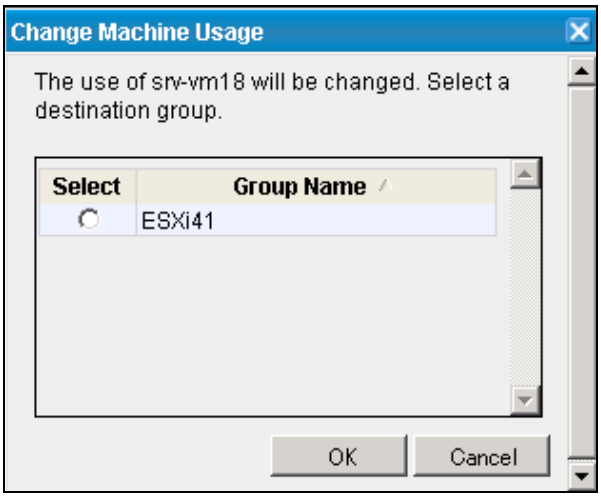
◆ Procedure

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which the machine to change the usage belongs in the **Operations** tree.
3. Details of the machine appear on the Main Window.
4. Select the check box of the target machine to change the usage under **Host List**.

5. Select **Change Machine Usage** of the Action menu.



6. **Change Machine Usage** dialog box appears. Select the new group.



7. Click **OK**.
8. When changing the usage of the machine finishes, the machine appears under **Host List**.

7.8. Replacing a Machine

If a failure occurs on the machine activated at an operation group, *Replace Machine* installs a disk image which was backed up in advance into a spare pool machine to replace the failed machine with the pool machine.

SigmaSystemCenter offers the following three kinds of methods to replace a machine:

- Restoring Image (using the backup / restoration functionality of DeploymentManager)
- Boot-config Replacing
- SAN Boot Replacing

To replace a machine, perform the following procedure:

Note:

▪ The targets of Replace Machine are a physical machine and a virtual machine server.

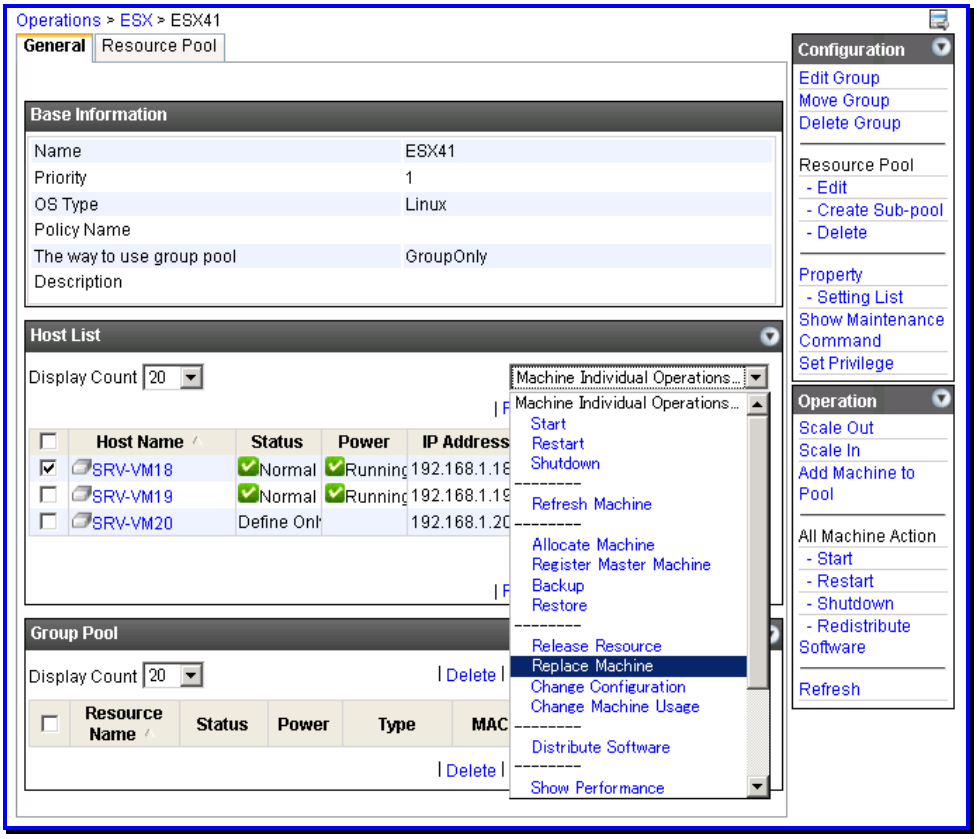
▪ For a virtual machine server, boot-config replacing is supported.

▪ Customized settings on NEC ESMPRO Manager will be lost during the processing of Replace Machine. Re-configure the settings again as necessary.

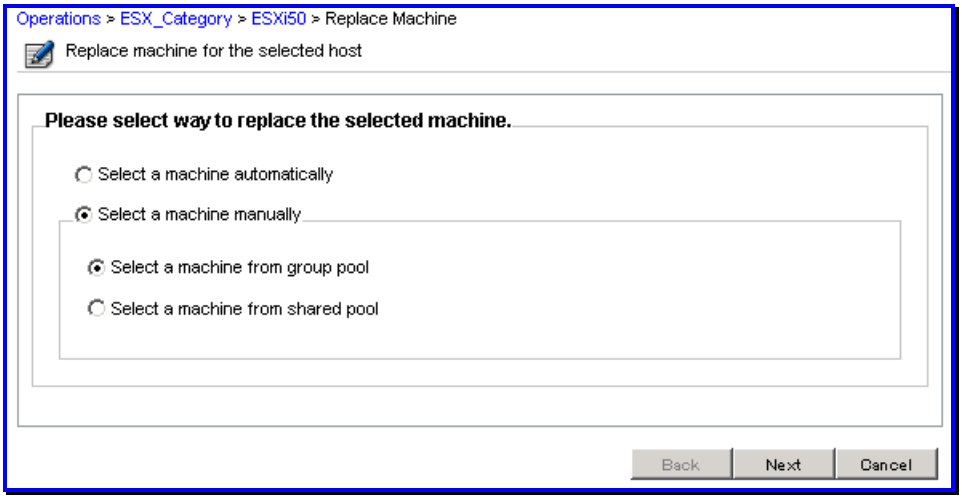
Reference: For the setting to use restoring image, see Subsection 2.3.1, "Failure Recovery (N+1 Recovery)" in *SigmaSystemCenter First Step Guide*.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which the machine to be replaced belongs in the **Operations** tree.
3. Details of the machine appear on the main window.
4. Select the check box of the machine to be replaced under **Host List**.

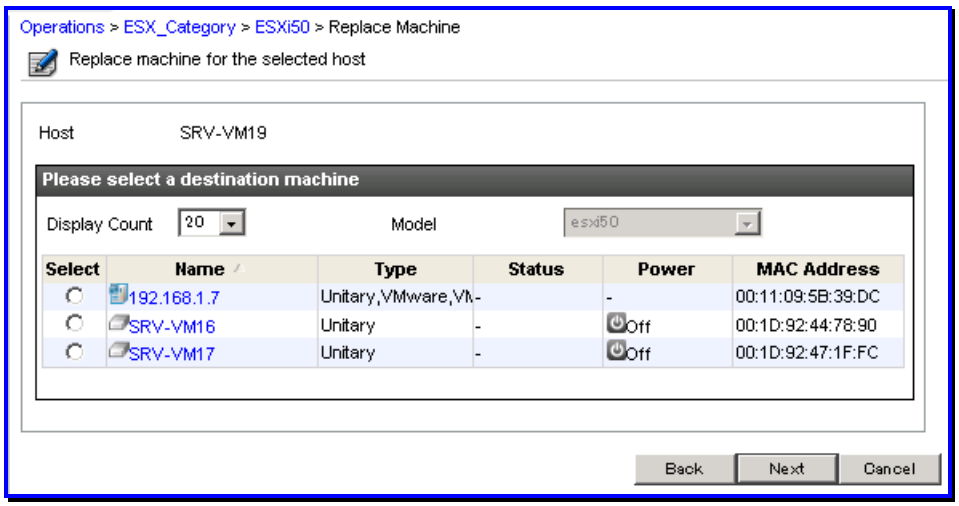
5. Select **Replace Machine** of the Action menu.



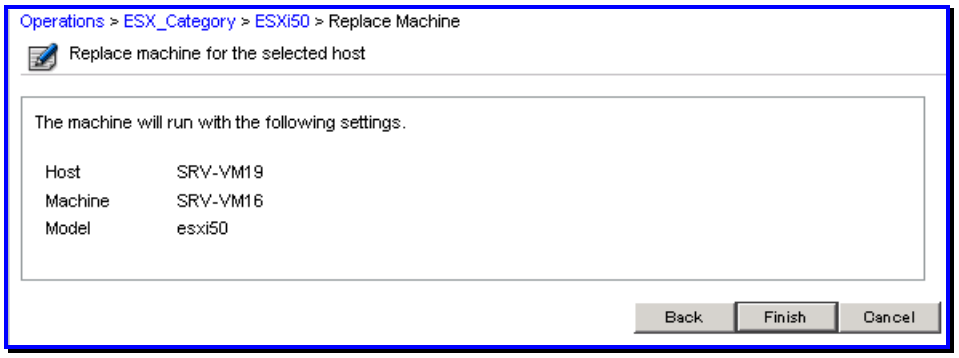
6. **Replace machine for the selected host** appears on the Main Window.
Select either way to replace the selected machine.


Operations > ESX_Category > ESXi50 > Replace Machine
Replace machine for the selected host
Please select way to replace the selected machine.
Select a machine automatically
Select a machine manually
Select a machine from group pool
Select a machine from shared pool
Back
Next
Cancel

7. Click **Next**.
8. If y**ou s**elected the way to replace automatically, skip to the procedure 11. If you selected the way to replace manually, **Replace machine for the selected host** appears on the Main Window.



9. If the **Select a machine from group pool** was selected in the **Replace machine for the selected host** window, a model does not need to be selected. If the **Select a machine from shared pool** was selected, select a model to use in the **Model** list.
10. Click **Next**.
11. A confirmation message appears.



12. Click **Finish**.
13. When replacing the machine finishes, the replaced machine appears under **Host List**.

7.9. Reconfiguring a Virtual Machine

To execute *Reconfigure* such as *Revert* (only for Differential Clone virtual machines), *Reconstruct* (only for Differential Clone virtual machines or Disk Clone machines), and *Apply Machine Profile* to a Differential Clone virtual machine, perform the following procedure:

Note:

▪ The drive letter of the extended disk might be changed by reconfiguring. Change the drive letter of the virtual machine's DVD device to be behind of the extended disk before starting reconfiguration.

▪ Reconfiguration will fail if the power status of the virtual machine is Suspend.

▪ Reconfiguration does not change the size or the type of the system disk of the virtual machine that is created with Differential Clone.

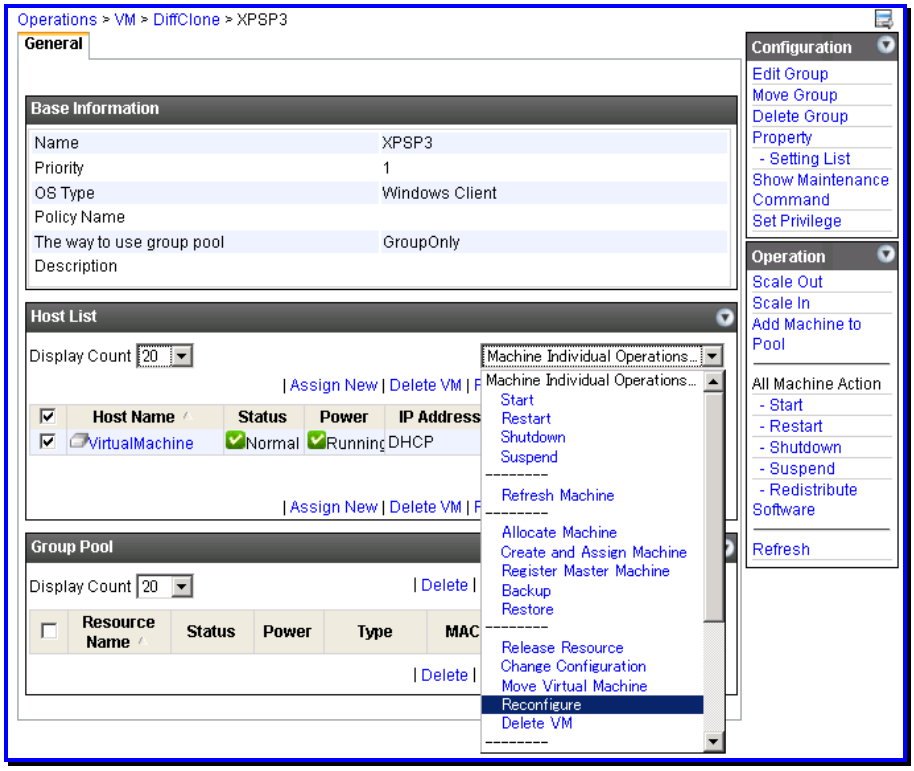
▪ In the Xen environment, the size or the type of the disk of a virtual machine cannot be changed with reconfiguration.

▪ While executing Reconstruct / Revert, if free space of a datastore is less than the size of the system disk, the processing fails.

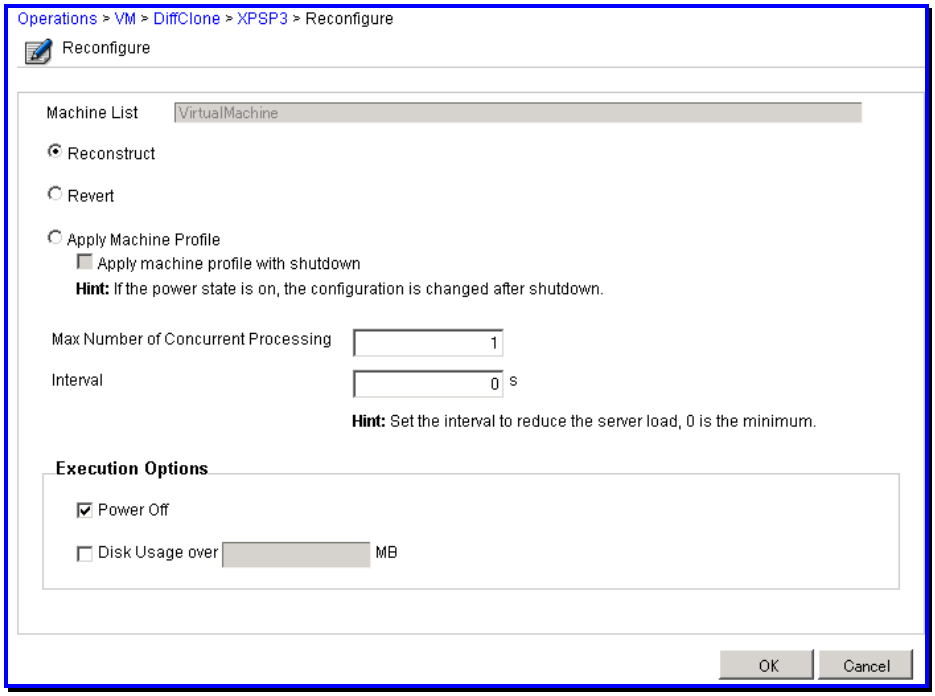
Reference: For the feature of reconfiguration (Revert / Reconstruct), see Subsection 2.5.2, "Revert" and 2.5.3, "Reconstruct" in *SigmaSystemCenter Overview Reference Guide.*

1. Click the **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the target group of which the virtual machine that is to be reconfigured from the **Operations** tree.
3. Details of the target group appear on the Main Window.
4. Select the check box of the host that is to be reconfigured in the **Host List**.

5. Click the **Reconfigure** of the Action menu.



6. **Reconfigure** appears on the Main Window.


Operations > VM > DiffClone > XPSP3 > Reconfigure
Reconfigure
Machine List VirtualMachine
Reconstruct
Revert
Apply Machine Profile
Apply machine profile with shutdown
Hint: If the power state is on, the configuration is changed after shutdown.
Max Number of Concurrent Processing 1
Interval 0 s
Hint: Set the interval to reduce the server load, 0 is the minimum.
Execution Options
Power Off
Disk Usage over MB
OK
Cancel

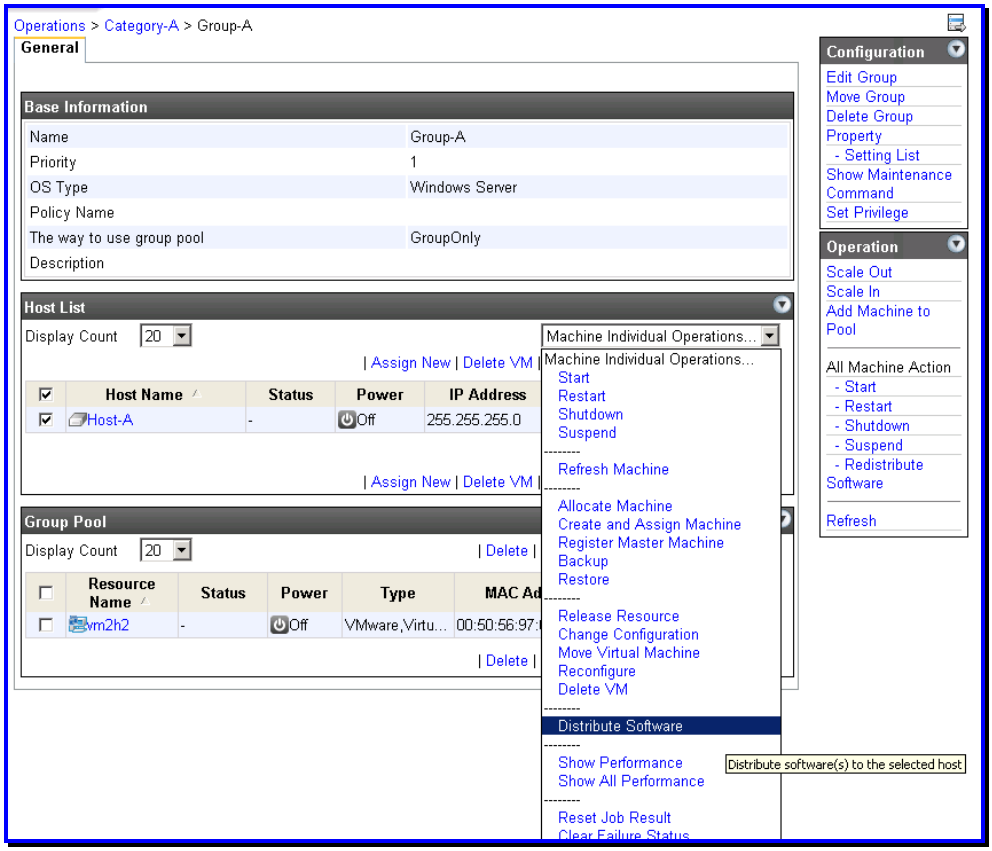
7. Select any of **Reconstruct**, **Revert** or **Apply Machine Profile**.
8. Enter the number of the virtual machines that are to be reconfigured simultaneously in the **Max Number of Concurrent Processing** box.
9. Enter the waiting time for executing a series of reconfiguration in the **Interval** box.
10. Select the condition to narrow virtual machines that are to be reconfigured in the **Execution Options**.
11. Click **OK**.
12. When reconfiguring starts, **In-Process** appears on the **Status** of the reconfigured virtual machine under **Host List**.
13. When reconfiguring finishes, a pop-up message appears, and **Normal** appears on the **Status**.
14. The result of the reconfiguring processing can be checked from the **Job** window on the **Monitor** view.

7.10. Distributing Specified Software to a Machine

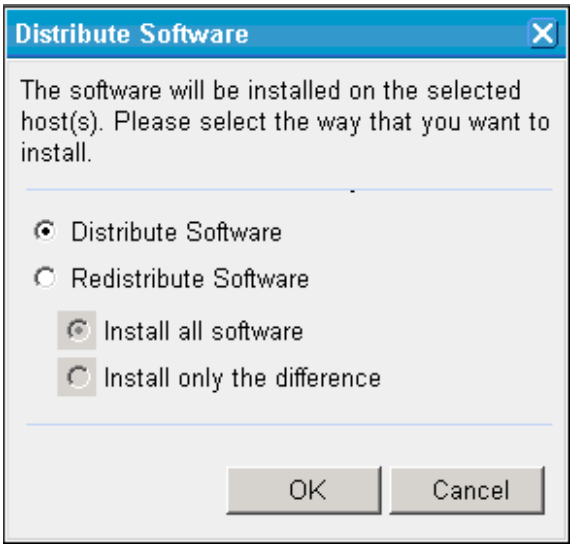
Distribute Software runs when a machine is activated, for example, after executing Allocate Resource. To distribute software to a machine on an arbitrary timing other than the timing of activating a machine, use Distribute Software. When using Distribute Software, software needs not to be registered to a group or a host in advance. Specify the software to distribute when you want to distribute the software.

To specify and distribute the software with this functionality, perform the following procedure:

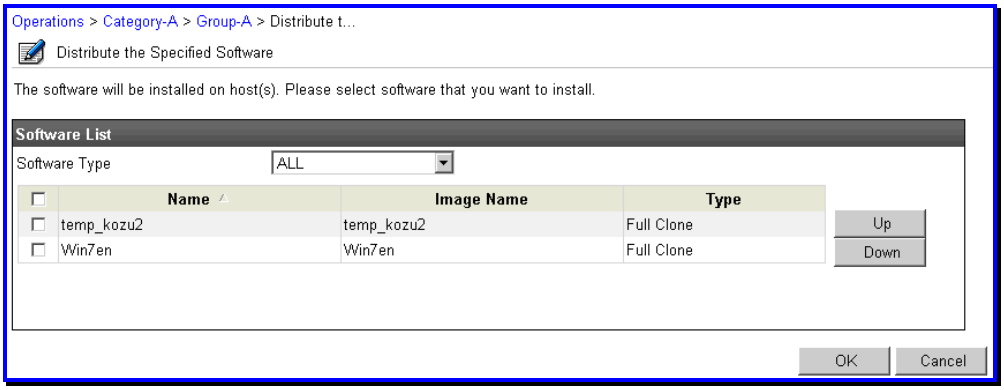
1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which you want to distribute software in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine to distribute software under **Host List**.
5. Select **Distribute Software** of the Action menu.



6. **Distribute Software** dialog box appears. Select **Distribute Software**, and click **OK**.


Distribute Software
The software will be installed on the selected host(s). Please select the way that you want to install.
Distribute Software
Redistribute Software
Install all software
Install only the difference
OK
Cancel

7. **Distribute Software** appears on the Main Window.



8. Select the software type to narrow in the **Software Type** list.
9. Select the check box of the software to distribute under **Software List**.
10. If you distribute multiple pieces of software, you can change the distribution order. To change the distribution order of the software, select the check box of the software to move and click **Up** or **Down**.
11. Click **OK**.
12. When distributing software starts, **In-Process** appears on the **Status** of the host under **Host List**.
13. When distributing software finishes, a pop-up message appears, and **Normal** appears on the **Status**.
14. The result of the distributing software processing can be checked from the **Job** window on the **Monitor** view.

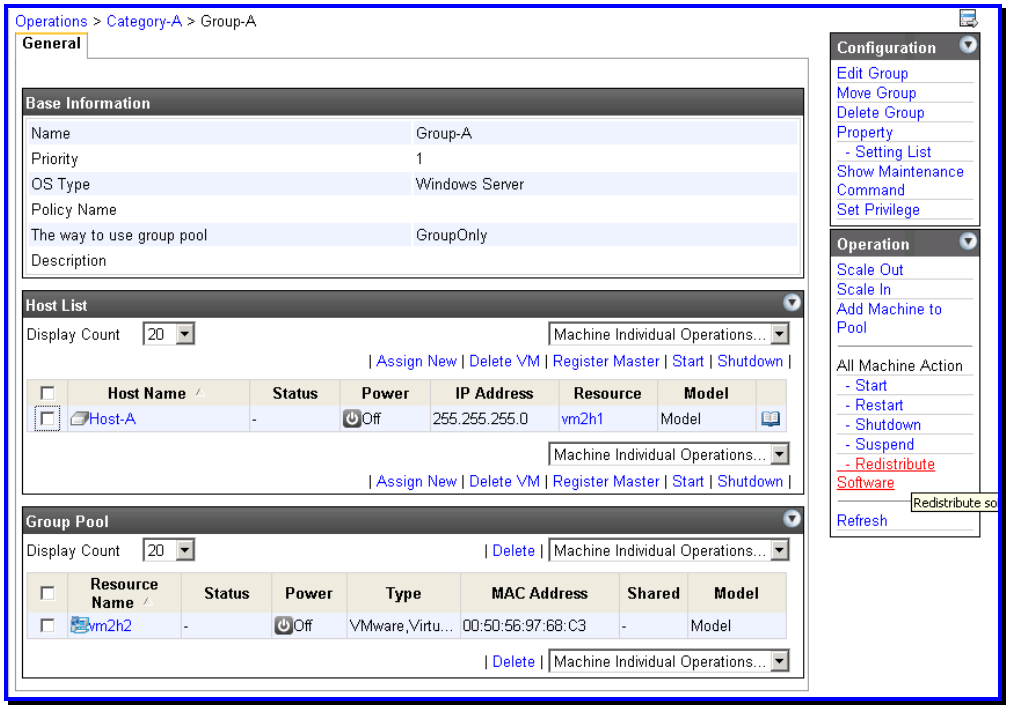
7.11. Redistributing Software

Redistribute Software is the functionality that re-installs the software registered to a group or a host into a specified machine or all the machines of a group. To redistribute software, perform the following procedure:

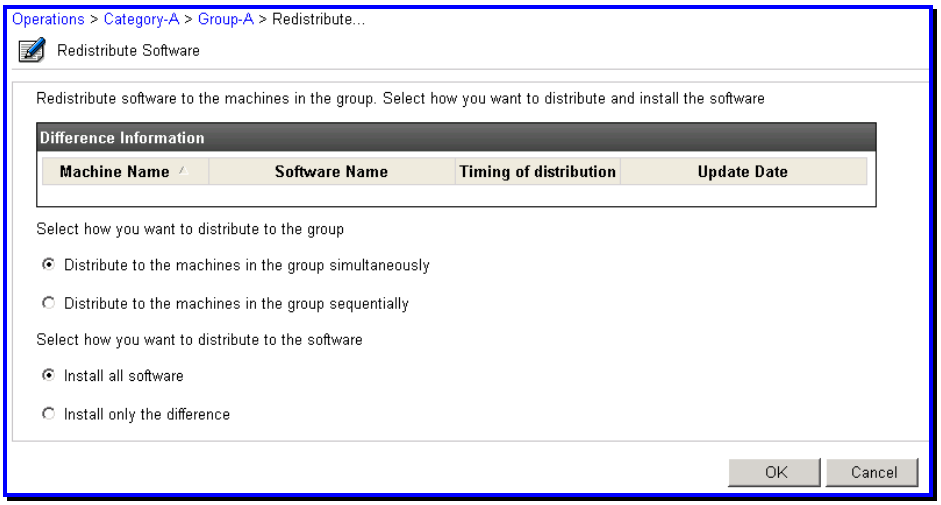
Note:

- A template cannot be redistributed.
- Because the software that is distributed with Distribute Software functionality is not registered to a group or a host, it cannot be redistributed.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which you want to redistribute software in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select **Redistribute Software** on the Operation menu.



5. **Redistribute Software** appears on the Main Window.


Operations > Category-A > Group-A > Redistribute...
Redistribute Software
Redistribute software to the machines in the group. Select how you want to distribute and install the software
Difference Information
Machine Name
Software Name
Timing of distribution
Update Date
Select how you want to distribute to the group
Distribute to the machines in the group simultaneously
Distribute to the machines in the group sequentially
Select how you want to distribute to the software
Install all software
Install only the difference
OK
Cancel

6. Specify the method to distribute to the group.
7. Specify the method to distribute the software.

Reference: For details of the distribution methods, see Subsection 1.2.6, "Redistribute Software" in *SigmaSystemCenter Overview Reference Guide.*

8. Click **OK**.
9. When redistributing software starts, **In-Process** appears on the **Status** of the host under **Host List**.
10. When redistributing software finishes, a pop-up message appears, and **Normal** appears on the **Status**.
11. The result of the redistributing software processing can be checked from the **Job** window on the **Monitor** view.

7.12. Change Configuration

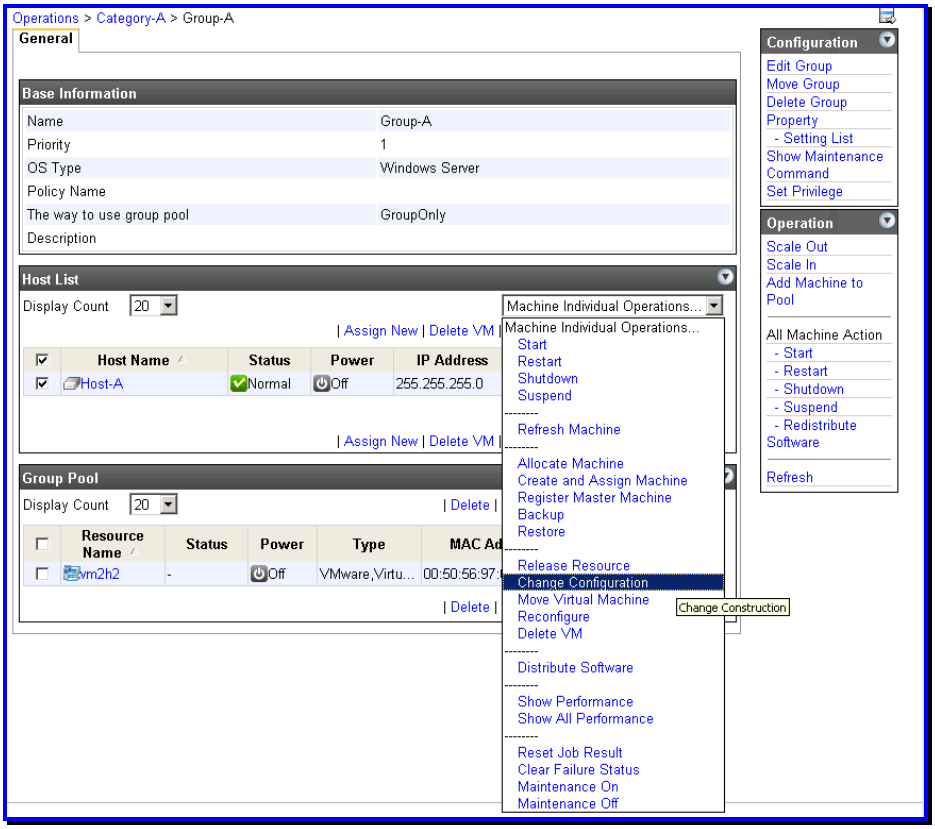
Change Configuration is the functionality to reflect changes in the settings of the group property, model property, and host to an activated machine.

To reflect the configuration changes to a machine activated in a group, just changing the settings is not enough for the following settings: the network setting and LB setting configured from the group property setting, the virtual network setting configured from the property of a VM server model, and the storage setting configured from each property of the group / model / host.

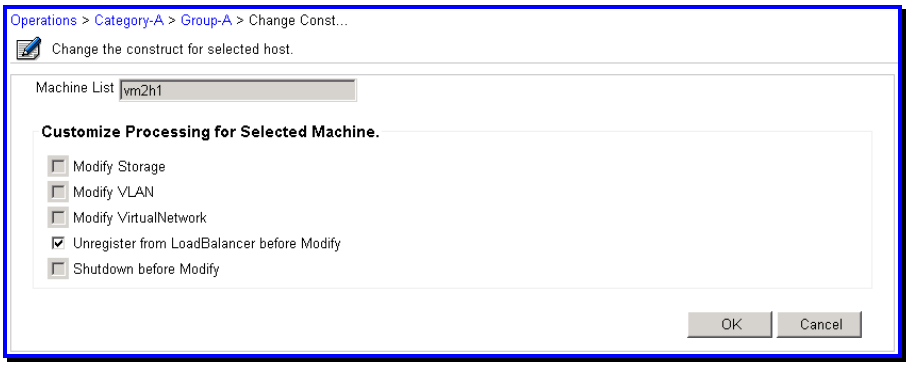
After changing the above settings, perform the following procedure to reflect the changes to an activated machine.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group on which configuration is to be changed in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine on which configuration is to be changed under **Host List**.
5. Click the **Change Configuration** of the Action menu.

6. **Change Configuration** appears on the Main Window.



7. Select the check box of the setting to reflect from the following items:



- Modify Storage

  After changing the storage setting of the group / model / host, if you select the **Modify Storage** check box and click **OK**, the disk volume is connected to the specified machine according to the changed storage setting.

Note: If the disk volume is deleted in the storage setting of the group / model / host, the modifying storage of change configuration does not disconnect the disk volume and the specified machine.

- Modify VLAN

  After changing the network setting from the property of the group, if you select the **Modify VLAN** check box and click **OK**, the specified machine is connected or disconnected to VLAN according to the changed network setting.

- Modify Virtual Network

  After changing the virtual network setting from the property of the VM server model, if you select the **Modify Virtual Network** check box and click **OK**, the virtual network is added to or removed from the specified virtual machine server according to the changed virtual network setting.

Note: In **Change Configuration**, the unused VLANs (port groups) will be removed.

- Unregister from LoadBalancer before Modify

  If you select the **Unregister from LoadBalancer before Modify** check box and click **OK**, a machine is deleted before change configuration processing runs in a situation where the machine is registered to a LB, in order to prevent change configuration processing from influencing the operation.

  After changing configuration, the specified machine is registered to the LB according to the changed LB setting of the group property.

Note: Do not edit the previous LB setting before being changed on the **Resource** view. If the previous setting is edited, the LB cannot be removed although the **Unregister from LoadBalancer before Modify** check box is selected. Create another setting and replace it with the previous setting.

- Shutdown before Modify

  If you select the **Shutdown before Modify** check box and click **OK**, the machine is shut down before change configuration processing runs. The machine is started during the change configuration processing.

8. Click **OK**.

8. Operations for Managing a Machine in the Virtual View

This chapter explains the operations to manage a machine in the Virtual view in SigmaSystemCenter.

This chapter contains the following sections:

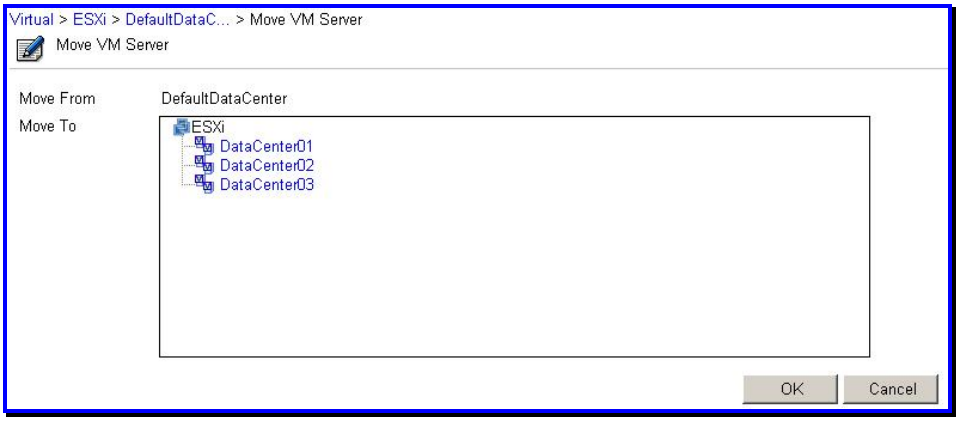
- 8.1 Moving a Virtual Machine Server 360
- 8.2 Creating a Virtual Machine in the Virtual View 361
- 8.3 Editing a Virtual Machine 364
- 8.4 Moving a Virtual Machine 366
- 8.5 Shifting the Operation of ESXi 371

8.1. Moving a Virtual Machine Server

With SystemProvisioning, you can move a virtual machine server between datacenters. Perform the following procedure to move a virtual machine server:

Note: This operation is only for a virtual manager of ESXi and Hyper-V single server.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the datacenter which you are adding a virtual machine server to in the **Virtual** tree to display details of the datacenter.
3. Select the check box of the virtual machine server to move under **VM Server List**, and then, click **Move** of the Action menu.
4. **Move VM Server** is displayed on the Main Window. Click the icon of the new datacenter.



5. Click **OK**.
6. When moving the virtual machine server finishes, the virtual machine server appears on the details of the destination datacenter.

8.2. Creating a Virtual Machine in the Virtual View

This section explains how to create a virtual machine in the Virtual view.

Because a virtual machine that is created in the Virtual view is a complete Clone of a master VM, the information such as the host name and IP address cannot be configured individually.

8.2.1. Creating a Virtual Machine with a Full Clone Template

To create a virtual machine with a Full Clone template, perform the following procedure:

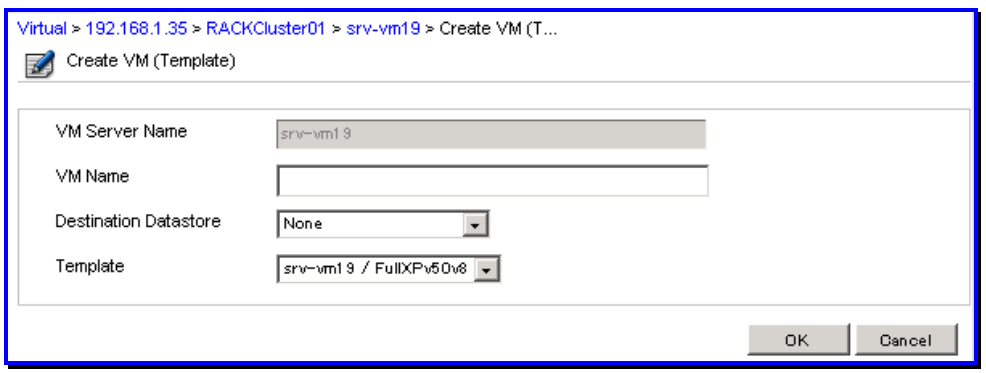
Note:

▪ A virtual machine based on a Full Clone template can be created only on the following virtual machine server:

- ▪ ESX and ESXi managed in VMware vCenter Server
- ▪ XenServer

▪ In the vCenter Server environment, if the name of the network configured on the virtual machine server to create a virtual machine and the name of the network used in a Full Clone template are different, a created virtual machine's network will be disconnected. After creating a virtual machine, edit the virtual machine to configure the correct network setting. See Section 8.3, "Editing a Virtual Machine" for how to edit the virtual machine.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the virtual machine server on which a virtual machine is to be created in the **Virtual** tree.
3. Click **Create VM (Template)** on the Configuration menu.
4. **Create VM (Template)** appears on the Main Window.



5. Enter the virtual machine name in the **VM Name** box.
6. Select the datastore where the virtual machine is to be created in the **Destination Datastore** list.
7. Select the template with which you are going to create the virtual machine in the **Template** list. A template is displayed in the following format: *an existing virtual machine server name* / *template name*.
8. Click **OK**.
9. When creating the virtual machine finishes, the created virtual machine appears on the details of the virtual machine server.

Note:

▪ If a virtual machine is created in the **Virtual** view, the virtual machine cannot be customized.

▪ To activate a created machine, use *Register Master Machine*.

8.2.2. Creating a Clone of a Virtual Machine

To create a clone of a virtual machine, in other words, create the same virtual machine as the specified virtual machine, perform the following procedure:

Note:

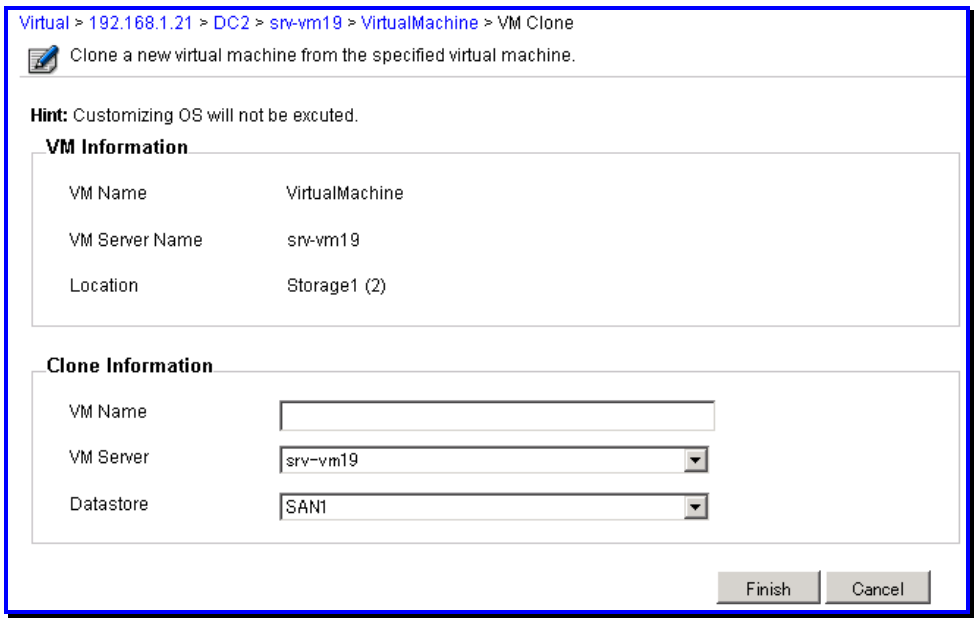
▪ A replica VM cannot be used for VM Clone.

▪ In the vCenter Server and standalone ESXi environment, if the name of the network configured on the virtual machine server to create a virtual machine and the name of the network used in the source virtual machine for cloning are different, a created virtual machine's network will be disconnected. After creating a virtual machine, edit the virtual machine to configure the correct network setting. See Section 8.3, "Editing a Virtual Machine" for how to edit the virtual machine.

▪ If a virtual machine is cloned in the standalone ESXi environment, the disk type of the created virtual machine is *Thick* regardless of the disk type of the source virtual machine.

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the source virtual machine to be cloned in the **Virtual** tree.
3. Details of the virtual machine appear on the Main Window.

4. Click the **VM Clone** on the Configuration menu to display the **VM Clone** window.



5. Enter the name of the virtual machine to be created in the **VM Name** box.
6. Select the datastore where the virtual machine is to be created in the **Destination Datastore** list.
7. Click **Finish**.
8. When creating a clone of the virtual machine finishes, details of the virtual machine appear and the virtual machine appears on the **Virtual** tree.

8.3. Editing a Virtual Machine

Edit a virtual machine following procedures below.

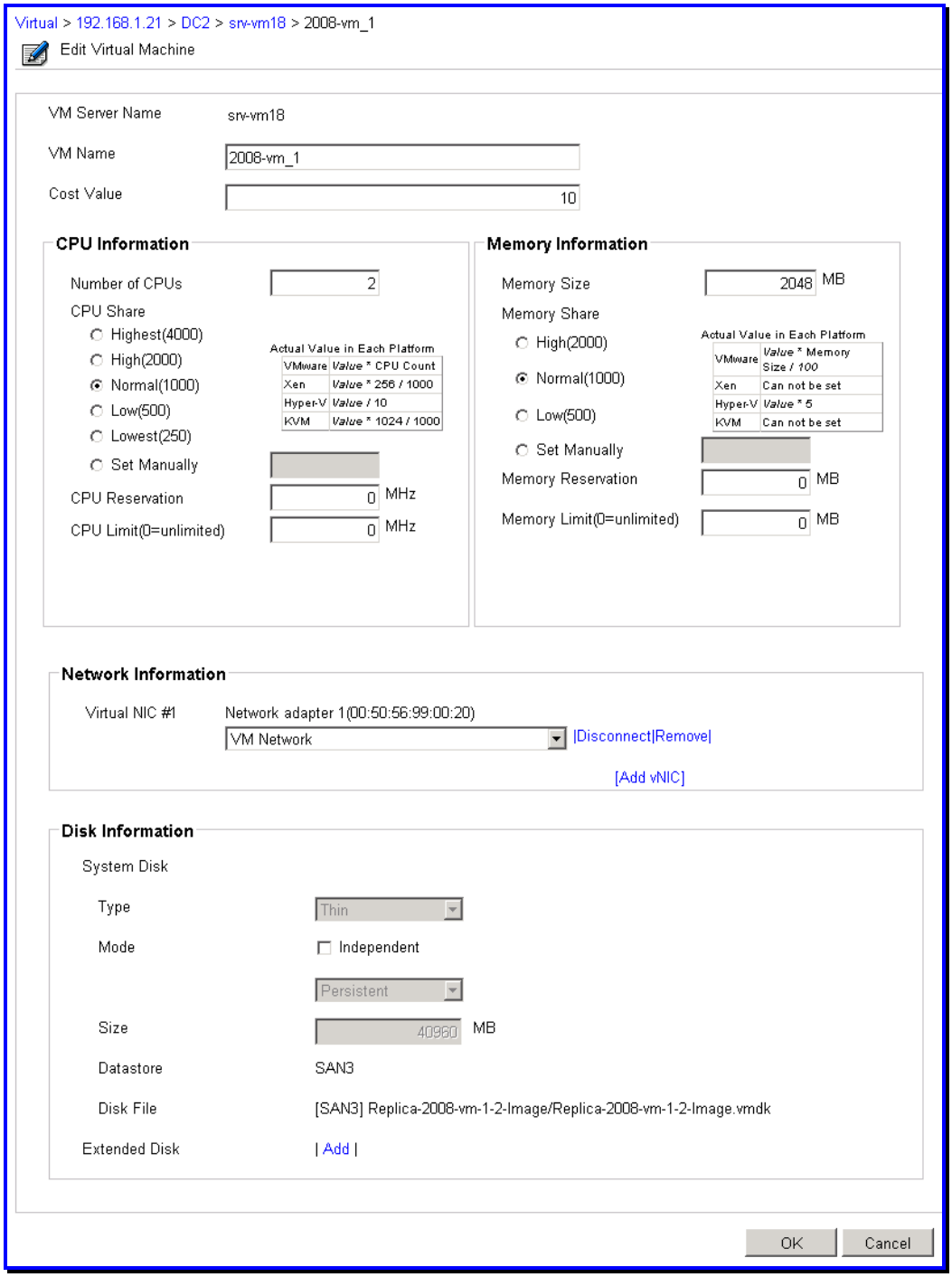
Note:

・You can configure Mode in the Disk Information section only on the VMware environment.

・In the Xen environment, neither changing the disk type and disk size, nor connecting the virtual NIC is allowed.

1. Click **Virtual** on the title bar to switch to the **Virtual** view.
2. Click the icon of the target virtual machine in the **Virtual** tree.
3. The main window displays the details of the virtual machine on itself.

4. Click **Edit Virtual Machine** on the **Configuration** menu to display **Edit Virtual Machine** on the main window.



5. The current settings are displayed on this window. Edit the value of each item as needed.
6. Click **OK**.

8.4. Moving a Virtual Machine

SigmaSystemCenter offers the following three methods for moving a virtual machine:

- Migration / Quick Migration
- Storage Migration / Move
- Failover

Reference: For details of each method, see Section 2.9, "Virtual Machine Mobility" in *SigmaSystemCenter Overview Reference Guide*.

Note:

▪ The Moving VM feature is not supported for Hyper-V single server.

▪ For a virtual machine on Hyper-V Cluster, Migration and Quick Migration can be executed only when the virtual machine is highly available and located on CSV. Neither Storage Migration / Move nor Failover is supported.

▪ Storage Migration / Move cannot be executed to a virtual machine created with Differential Clone, or a virtual machine of Differential Clone replica.

▪ A virtual machine created with Differential Clone or a virtual machine of Differential Clone replica cannot be moved because virtual machine server over a datacenter.

▪ In the standalone ESXi environment, only a virtual machine on a shared storage (other than NFS) can be moved.

▪ In the standalone ESXi environment, a virtual machine cannot be moved with powered ON (except for Quick Migration and Move).

▪ In the standalone ESXi environment, Storage Migration / Move does not move a virtual machine to another datastore although a datastore is selected in the **Please select the destination datastore**. In addition, the setting of **Exclude extended disk from migration** is ignored.

▪ Failover in the standalone ESXi environment cannot be executed from the Web Console. It can be executed only in the following two cases: triggered by a policy, and a virtual machine is specified as the target machine by using *evacuate machine command*, the ssc command.

▪ In the Xen environment, only Migration and Failover are supported for a virtual machine.

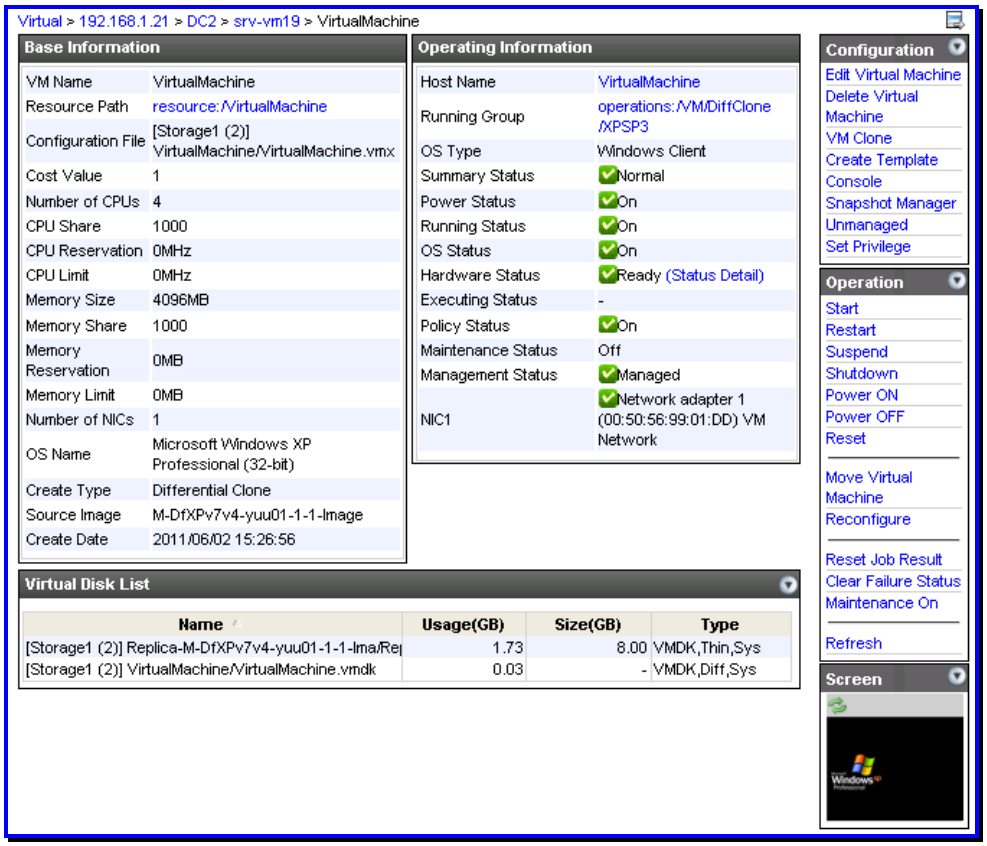
▪ If the disk whose type is "RDM (Physical)" or "RDM (Virtual) is added to a virtual machine in the VMware environment, moving across DataCenter is not possible. Moving by Storage Migration or Move across datastores is not possible either.

SigmaSystemCenter offers the two types of moving procedures: one is specifying a virtual machine to move, and the other is specifying a virtual machine server to which a virtual machine to be moved.

To move multiple virtual machines on a virtual machine server at one time, specify the virtual machine server and move virtual machines.

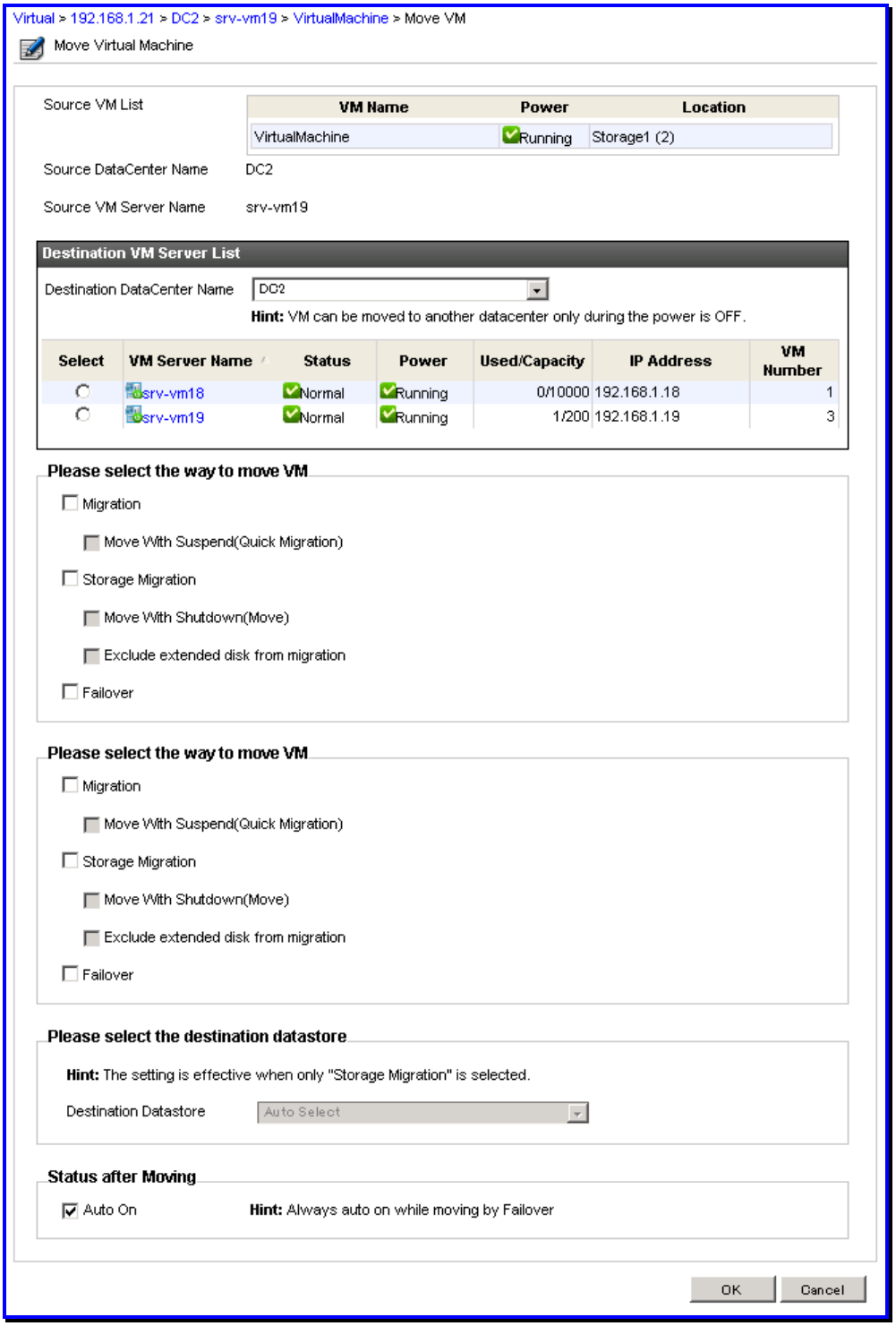
First, specify a virtual machine to move with the following procedure:

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of the virtual machine to move in the **Virtual** tree.
3. Details of the virtual machine appear on the main window.



4. Click **Move Virtual Machine** on the **Operation** menu.

5. **Move Virtual Machine** appears on the main window.



6. Select the new datacenter and virtual machine server under **Destination VM Server List**. (Required)

7. Select the move method from the following check boxes under **Please select the way to move VM**.

Migration	If this check box is selected, SigmaSystemCenter moves a powered on machine with Hot Migration and moves a powered OFF machine with Cold Migration.
Move With Suspend (Quick Migration)	If this check box is selected, SigmaSystemCenter suspends the virtual machine before moving it, and then resumes the virtual machine after moving.
Storage Migration	If this check box is selected, SigmaSystemCenter moves the virtual machine including the disk.
Move With Shutdown (Move)	If this check box is selected, SigmaSystemCenter moves the virtual machine including the disk after shutting down the virtual machine.
Exclude extended disk from migration	If this check box is selected, SigmaSystemCenter moves the virtual machine except the extended disk during Storage Migration / Move.
Failover	If this check box is selected, SigmaSystemCenter moves the virtual machine if the virtual machine server is down with a failure. If the virtual machine exists on the shared disk, Hot Migration / Cold Migration and Failover can be executed.

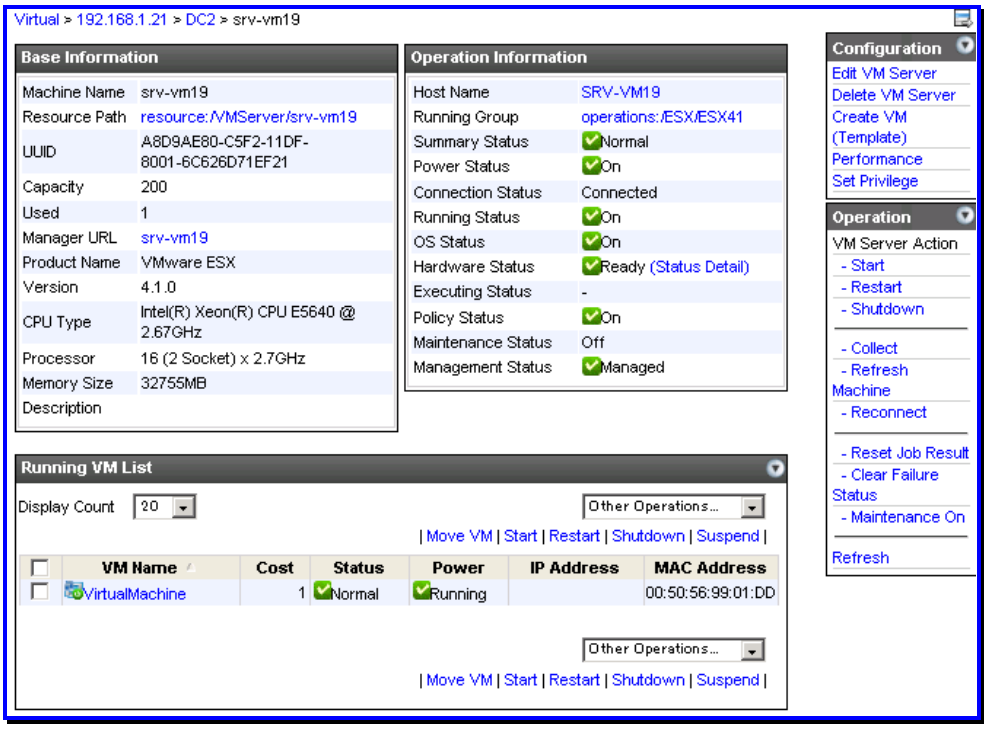
Note: In the case of Hyper-V, the **Migration** check box is selected by default because Move or Failover is not supported. Migration, Live Migration and Quick Migration are equivalent to Move of Failover Cluster Manager.

8. If only the **Storage Migration** check box is selected under **Please select the way to move VM**, select the destination datastore in the **Destination Datastore** list
9. To move a turned off virtual machine and then turn on the virtual machine automatically, select the **Auto On** check box.
10. Click **OK**.
11. When moving the virtual machine starts, **In-Process** appears on the **Executing Status** under **Operating Information**.
12. When moving the virtual machine finishes, a pop-up message appears, and the tree display is updated. If the **Executing Status** is not updated automatically, execute the **Refresh** on the **Configuration** menu.

Second, specify a virtual machine server with the following procedure:

1. Click **Virtual** on the Title bar to switch to the **Virtual** view.
2. Click the icon of a virtual machine server which manages the virtual machine in the **Virtual** tree.

3. Details of the virtual machine server appear on the main window.



4. Select the virtual machine under **Running VM List** or **Unused VM List**.
5. Click **Move VM** of the Action menu. From the next procedure, the procedure is the same as that of specifying a virtual machine.

8.5. Shifting the Operation of ESXi

You can operate ESXi in the standalone environment or vCenter Server environment. This section explains how to shift the environment from standalone to vCenter Server and the other way as well. Shift the environment with the following flow.

Note: You cannot operate one ESXi in both standalone environment and vCenter Server environment.

8.5.1. Shifting the Environment From Standalone to vCenter Server

To shift the environment of ESXi from standalone to vCenter Server, perform the following procedure:

1. If the ESXi to shift is managed by SystemProvisioning, set the target ESXi in the Maintenance mode from the Web Console. For how to set in the Maintenance mode, see Subsection 9.1.3, "Setting in the Maintenance Mode and Releasing the Maintenance Mode."
2. Click **Virtual** on the Title bar to switch to the **Virtual** view.
3. Delete all the templates that exist on the ESXi except for the HW Profile Clone templates.

   Note: After shifting to vCenter Server, all the templates used in the Standalone environment are unavailable except for the HW Profile Clone templates.

4. Select the datacenter of the target vCenter Server in the **Virtual** tree, and add the ESXi to shift. For how to add ESXi, see Subsection 4.3.2, "Adding a Virtual Machine Server."
5. Check that the addition of the ESXi is completed on the **Job** window in the **Monitor** view.
6. After adding the ESXi, click **Update** on the **Operation** menu.
7. Check that the ESXi to shift is registered in the datacenter of the target vCenter Server.
8. Click the icon of the datacenter to which the ESXi to transmit belongs under the virtual manager of ESXi in the **Virtual** tree.

   Note: Do not click the icon of ESXi in the tree of the datacenter or a virtual machine on ESXi. If you do, a machine under the vCenter Server is selected.

9. Details of the datacenter appear on the main window.

10. Select the check box of the ESXi to shift under **VM Server List**, and click **Delete** of the Action menu.
11. Check that the deletion of the ESXi is completed on the **Job** window in the **Monitor** view.
12. Click the **Virtual** in the **Virtual** tree.
13. After deleting the ESXi, click **Update** on the Operation menu, and confirm that the ESXi is deleted from the standalone environment.
14. If you have set the ESXi in the Maintenance Mode, release the Maintenance Mode. For how to release the Maintenance Mode, see Subsection 9.1.3, "Setting in the Maintenance Mode and Releasing the Maintenance Mode."

Note:

▪ If you operate the target ESXi in the group with VM Server model, you need to check the settings in the Datacenter list of Model Property Setting of the virtual machine server after shifting the environment. If you have configured the settings, change the settings according to the shifted datacenter.

▪ After shifting to the vCenter Server, you can execute create a virtual machine using a Full Clone template. See Section 6.2, "Creating a Template" to create a full clone template.

8.5.2. Shifting the Environment From vCenter Server to Standalone

To shift the environment of ESXi from vCenter Server to standalone, perform the following procedure:

1. Click the **Virtual** on the Title bar to switch to the **Virtual** view.
2. Delete all the templates that exist on the ESXi except for the HW Profile Clone templates.

Note: After shifting to vCenter Server, all the templates used in the Standalone environment are unavailable except for the HW Profile Clone templates.

3. Select the datacenter of the target standalone environment in the **Virtual** tree, and add all the ESXis that are managed by vCenter Server. For how to add ESXi, see Subsection 4.3.2, "Adding a Virtual Machine Server."
4. Verify that the addition of the ESXis is complete on the **Job** window in the **Monitor** view.
5. Click the **Management** on the Title bar to switch to the **Management** view.
6. Click the **Subsystem** on the **Management** tree.
7. Delete the vCenter Server that shifting is done.
8. Prepare a template by reference to Subsection 6.2, "Creating a Template."

9. Register an operation group to execute the **Create and Assign Machine**.

Note:

▪ When the ESXi to be shifted is operated in the group of the virtual machine server model, verify whether it is configured on the **Datacenter** list in the model property setting or not after the shift is complete. If it is configured, select the shifted datacenter in the **Datacenter** list.

▪ After shifting to the standalone environment, the Full Clone template is not available.

▪ The account and password of ESXi may be cleared when shifting to the standalone environment. Verify that the account and password are set on the Edit Subsystem window of the Management view. If not, edit the subsystem to enter them.

8.5.3. Operations After Failing Over in the Standalone ESXi Environment

If the Standalone ESXi environment is used, after restoring processes (Failover), perform the following procedure when recovering and starting up a virtual machine server where failure occurred. The information of a virtual machine server where failure occurred is updated by performing this procedure.

If this procedure is not performed, the virtual machine server cannot recognize a virtual machine was shifted to another virtual machine server, and the virtual machine looks as if it is not shifted yet.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of the target ESX in the **Resource** tree and click **Maintenance On** on the Operation menu.
3. Click **Start** on the Operation menu to start the virtual machine server.
4. Start the command prompt.

   Click the **Start** menu, click **All Programs**, click **Accessories**, and click **Command Prompt**.
5. Run the ssc recover machine command with the following command line to recover the information of virtual machines managed in the virtual machine server.

```
ssc recover machine SourceName
```

6. Click **Clear Failure Status** in the Operation menu.
7. Click **Maintenance Off** in the Operation menu.

8. Click **Collect** on the Operation menu to collect information of resources, such as machines.

Note:

▪ If an ESXi that is in the same datacenter as an ESXi to recover cannot be connected due to a specific reason, such as network failure and its connection status is "Disconnected", the ESXi cannot be the target destination. This kind of virtual machine server is recorded on the Operations Log as a warning message.

▪ If an ESXi to recover cannot be connected due to a specific reason, such as network failure or its connection status is other than Disconnected, the process might fail. In addition, when you execute power operations to a virtual machine that was moved from an original ESXi when recovering, the recovery process might fail.

▪ If the recovery processing fails, execute the recovery processing again or delete a virtual machine that is registered delicately from vSphere Client.

Part III Maintenance

This part explains the operations for maintenance of SigmaSystemCenter and backup and restore.

- 9 Maintenance
- 10 Backup and Restoration

9. Maintenance

This chapter explains the necessary information for the maintenance of SigmaSystemCenter.

The items explained in this chapter are as follows.

- 9.1 Operations for Maintenance 378
- 9.2 Adding a Managed Machine After Starting Operation in SigmaSystemCenter 395
- 9.3 Working with Service Portal 399
- 9.4 Connecting to a Console 404
- 9.5 Managing a Machine Using a Smart Group 418
- 9.6 Machine Management with Tag Cloud 422
- 9.7 Checking Performance Status 425
- 9.8 Checking Failed Status 432
- 9.9 Viewing IPMI Information 440
- 9.10 Replacing Hardware 444
- 9.11 Extracting Logs 458
- 9.12 Changing IP Address of a Management Server 462

9.1. Operations for Maintenance

9.1.1. Starting, Restarting, and Stopping SystemProvisioning

When you execute operations, such as applying a patch of OSs and maintaining a management server, you need to start, restart, and stop SystemProvisioning. Perform the following procedure:

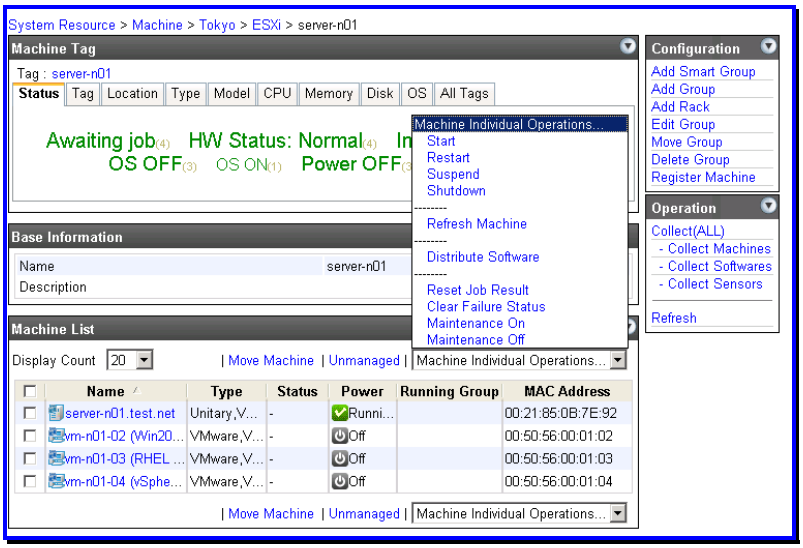
1. Click **Monitor** on the Title Bar to switch to the **Monitor** view on the Web Console.
2. Check that there is no Job in operation on the **Dashboard** window or **Job** window.
3. Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start Services Snap-In.
4. From **Services**, right-click **PVMService**, and click **Start**, **Restart**, or **Stop**.

9.1.2. Starting, Restarting, Shutting Down, or Suspending a Machine

Because event notifications occur when a managed machine's power is directly operated, start, restart, shut down, or suspend the managed machine from SigmaSystemCenter with the following procedure:

- Executing the power operations on the Resource view :
  - When specifying a group where a machine on which the power operations are to be executed exists:
    1. Click **Resource** on the Title bar to switch to the **Resource** view.
    2. Click the icon of the group to which the machine to start, restart, shut down, or suspend belongs in the **Resource** tree.
    3. Details of the group appear on the Main Window.

4. Select the check box of the host under **Machine List** and click **Start**, **Restart**, **Shutdown**, or **Suspend** of the Action menu.



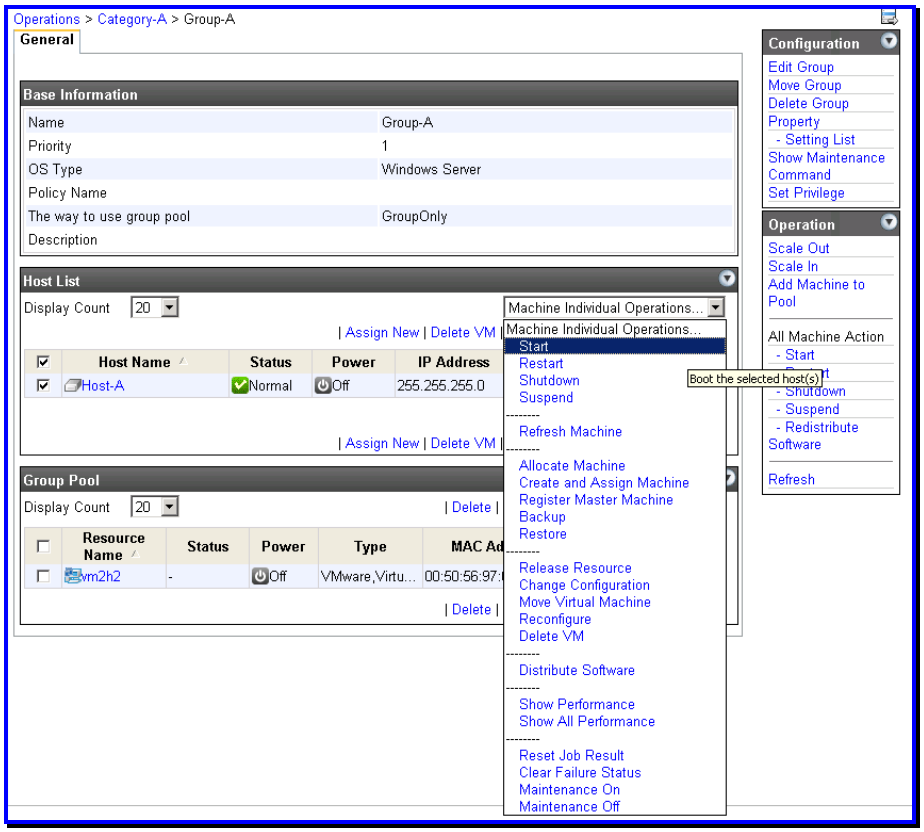
5. A confirmation message appears. Click **OK**.

- If you specify a machine to execute the power operations :
  1. Click **Resource** on the Title bar to switch to the **Resource** view.
  2. Click the icon of the group to which the machine to start, restart, shut down, or suspend belongs in the **Resource** tree.
  3. Details of the group appear on the Main Window.
  4. Select the check box of the host under **Machine List** and click **Start**, **Restart**, **Shutdown**, or **Suspend** in the **Operations** menu.
  5. A confirmation message appears. Click **OK**.

◆ Executing the power operations on the Operations view

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group where the machine on which starts, restart, shut down, or suspend is to be executed exists in the **Operations** tree.
3. Details of the group appear on the Main Window.

4. Select the check box of the host under **Host List** or **Group Pool**.



5. Click **Start**, **Restart**, **Shutdown**, or **Suspend** of the Action menu.

Note:

・ If you start, restart, shut down, or suspend a machine from the Operation menu, the command is run to all the machines which hosts are allocated to resources.

・ If you start, restart, shut down, or suspend a machine from the Action menu, the command is run only to the machine selected under the **Host List** or **Group Pool**.

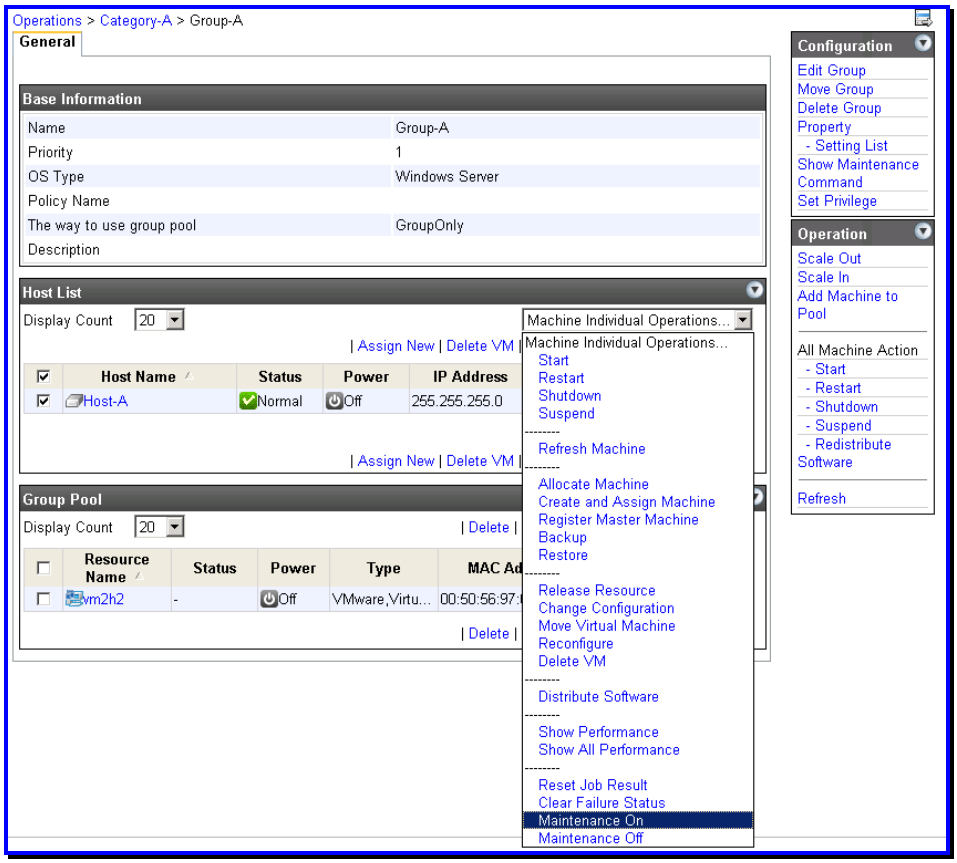
6. A confirmation message appears. Click **OK.**

9.1.3. Setting in the Maintenance Mode and Releasing the Maintenance Mode

To set in and release Maintenance Mode, perform the following procedure:

The Maintenance Mode can be used when you want to ignore failure notifications during maintenance of a machine. If a failure notification is generated on a machine set in the Maintenance Mode, recovery processes according to policies are not executed. In addition, if you set an inactive machine in a group pool in the Maintenance Mode, the machine is not selected as a replacement target due to a recovery process according to a policy.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to which the machine to set in or release the Maintenance Mode belongs in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine to set in or release the Maintenance Mode under **Host List** or **Group Pool**.

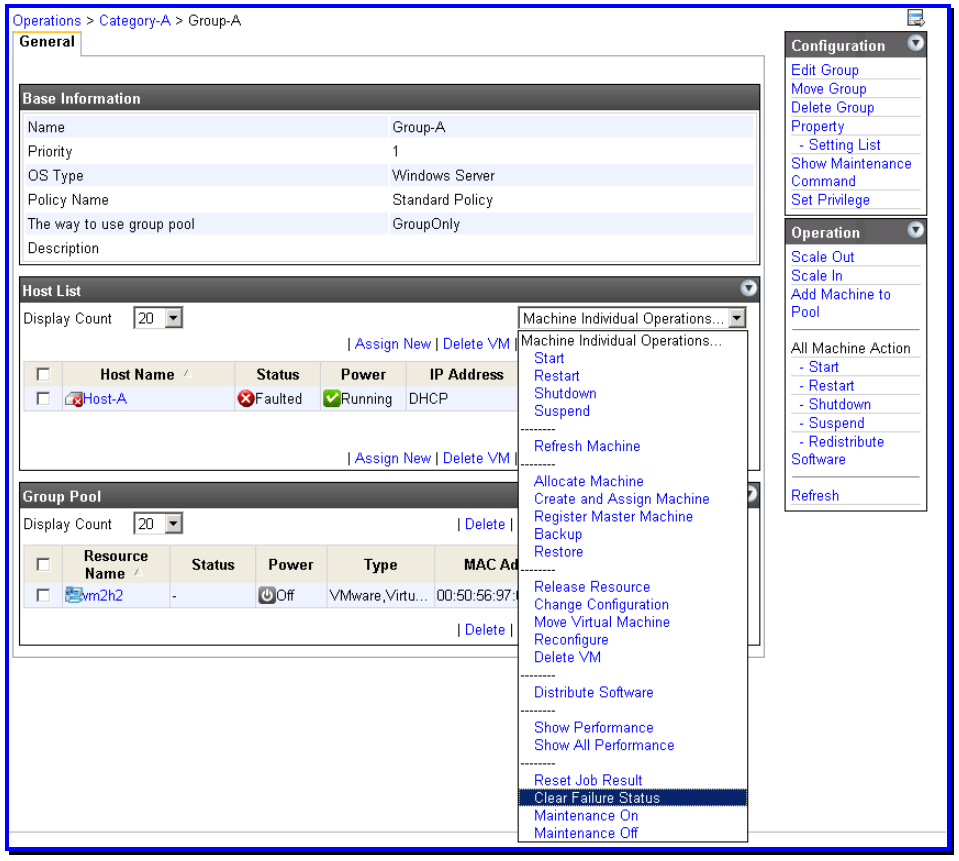


5. To set in Maintenance Mode, click **Maintenance On** of the Action menu.
   To release the Maintenance Mode, click **Maintenance Off** of the Action menu.
6. A confirmation message appears. Click **OK**.
7. **Status** changes to **Normal** under **Host List** or **Group Pool**.

9.1.4. Clearing the Hardware Status of a Machine From Faulted to Ready

When a failure on hardware of a machine is detected, SystemProvisioning display *Error (Faulted)* or *Error (Degraded)* in the Status column. After you clear the cause of the failure and restore the machine, perform the following procedure to clear the hardware status of a machine:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group of the machine to reset the failed status in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine under **Host List** or **Group Pool**.
5. Click **Clear Failure Status** of the Action menu.



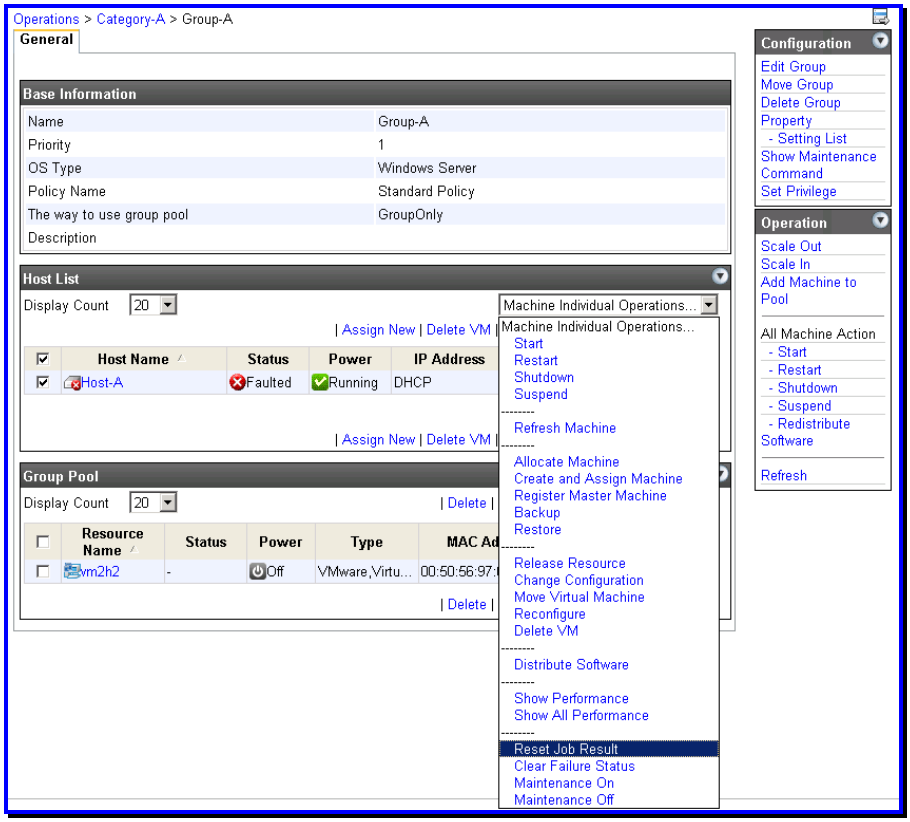
6. A confirmation message appears. Click **OK**.
7. The hardware status changes to **Normal**, and the summary status displayed on **Status** under **Host List** or **Group Pool** is updated. If a host name or a resource name is clicked, details of the machine appear, and each status can be checked.

Reference: For status of a machine, see Subsection 1.1.9, "Machine Status".

9.1.5. Resetting Job Result

SystemProvisioning sets the status of the resource *Error (Abort)* if SystemProvisioning failed the execution of Actions for some reason, for instance, starting or stopping a machine from the operation on the Web Console. To reset the management status of the target machine, after collecting logs about the machine and clearing the cause of the failure, perform the following procedure:

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to reset the Job in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine to reset the Job result under **Host List** or **Group Pool**.
5. Click **Reset Job Result** of the Action menu.



6. A confirmation message appears. Click **OK**.
7. The execution status changes to **Normal**, and the summary status displayed on **Status** under **Host List** or **Group Pool** is updated. If a host name or a resource name is clicked, details of the machine appear, and each status can be checked.

Reference: For status of a machine, see Subsection 1.1.9, "Machine Status".

9.1.6. Executing Maintenance Operations of a Machine

To execute maintenance operations, such as Power ON, Power OFF, Reset, Power Cycle, dump, LED on, LED off, and ACPI shutdown to a machine, perform the following procedure:

To execute these maintenance operations, you need to enable the settings for Out-of-Band Management in advance.

Reference: For how to use Out-of-Band Management, see Section 3.10, "Preparing for the Use of Out-of-Band (OOB) Management" and Subsection 4.9.6, "Configuring Settings on the Account Tab."

Note:

・ If you do not have the Administrator authority, Show Maintenance Command is not displayed on the Configuration menu.

・ The Power OFF, Reset and Power Cycle terminate a machine forcibly.

Dump also terminates a machine forcibly according to settings of the OS. Use these functionalities with recognition for possibility to harm your system, damaging data for example if a machine is terminated forcibly.

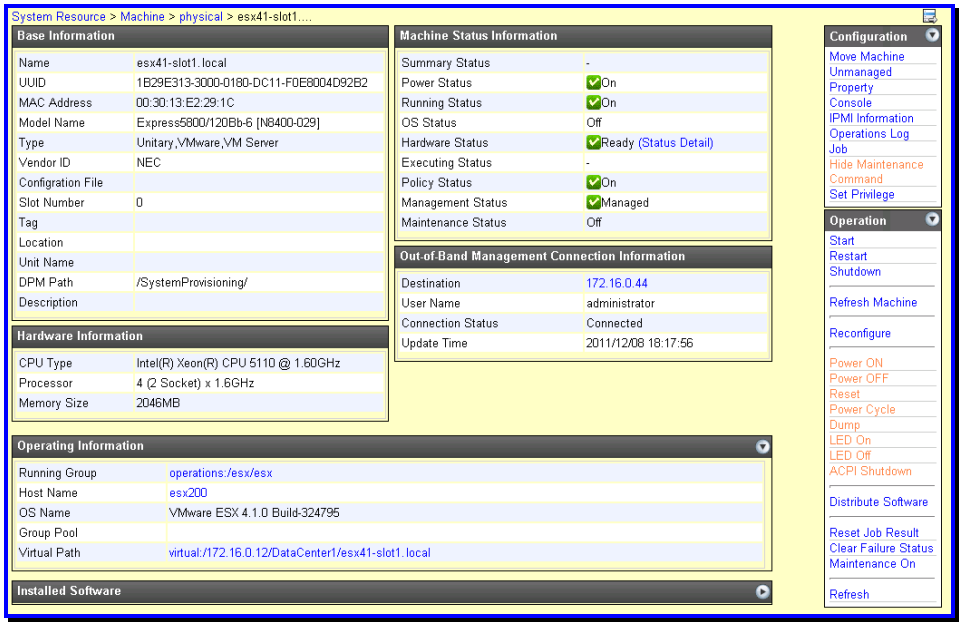
・ The Power ON executes the power operation to a machine and checks that the machine is powered ON; however, it does not ensure the startup of software, such as OS, on the machine.

・ The Reset, dump, LED on and LED off execute commands to operate each of them to a machine; however, it does not check if the operations are completed.

・ If you execute LED on, the LED of the target machine continues to light; however, LED is off for a certain period of time, about 4 minutes 30 seconds, on some models.

1. Click **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of a target machine to execute maintenance operations in the **Resource** tree.
3. Details of the machine appear on the Main Window.
4. If the target machine belongs to an operation group, click **Maintenance On** of the Action menu to set the machine in the Maintenance Mode.

5. Click **Show Maintenance Command** on the Configuration menu. Maintenance operations, such as **Power ON** and **Power OFF**, are displayed on the Operation menu.



6. Click the maintenance operation to execute on the Operation menu.
7. If you set in the Maintenance Mode in the procedure 4, click **Maintenance Off** on the Configuration menu to release the Maintenance Mode.
8. Click **Collect** on the Operation menu to collect information of resources, such as a machine. However, LED on and off do not require this operation.

9.1.7. Changing a Group of a Host (for Virtual Groups Only)

To move a host to another group, perform the following procedure:

Information set to the host, including IP address information, and information of a resource on which the host is activated can be succeeded.

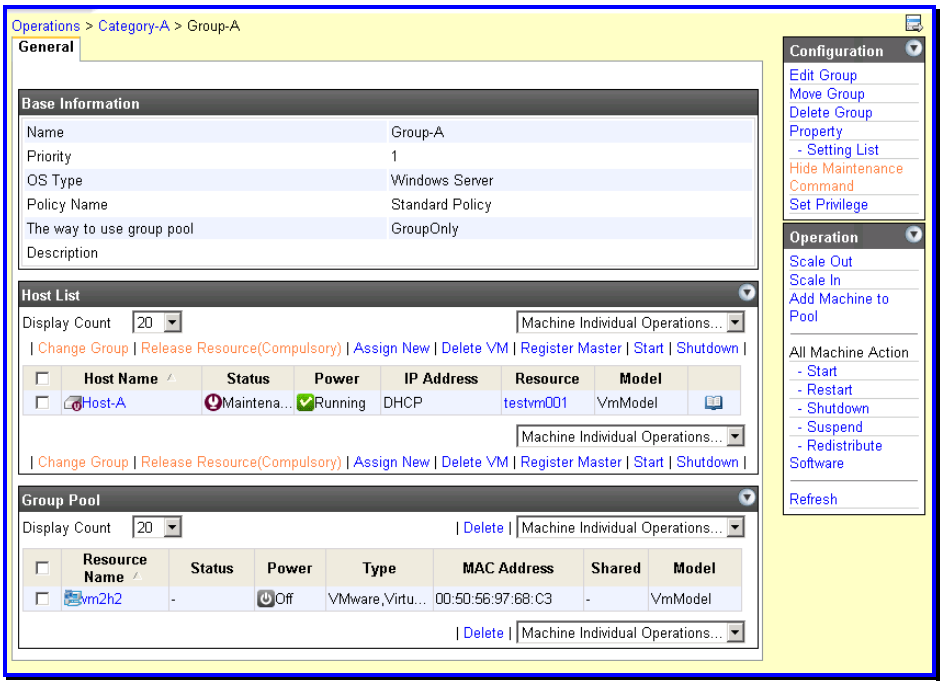
Note:

・Without administrator authority, The Show Maintenance Command is not displayed on the Configuration menu. In addition, this is displayed only if the model type of a target group is VM.

・You cannot change a group if your setting applies to one of the following conditions:

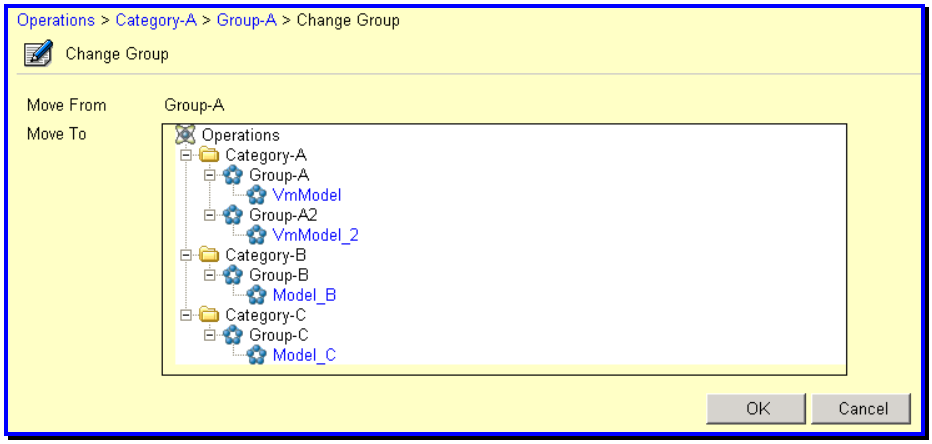
- If the OS types of a source operation group and destination operation group differ.
- If the network connection information of a source model and destination model differs.
- If a host with the same host name as a selected host is registered to a destination.
- If an activated resource on a selected host is shared in a pool of a destination operation group.
- If some process, such as Job execution and configuration change, is being executed to a selected host.

1. Click **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group to change in the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click **Show Maintenance Command** on the Configuration menu. **Change Group** is displayed on the Action menu under **Host List**.



5. Select the check box of a host to change a group under **Host List**.

6. Click **Change Group** of the Action menu. **Change Group** is displayed on the Main Window.



7. Select a destination model and click **OK**.
8. The group of the host changes and the details of the destination group appear.

9.1.8. Changing Disk Volume Configuration

To change the configuration of the disk volume that is connecting to SigmaSystemCenter, perform the following procedure:

Note:

When changing the configuration of shared disk volume, perform the procedure below on all machines that are correlated to the shared disk.

▪ For NEC Storage, the procedure 1 and 7 can be omitted if the machine enters the maintenance mode in the procedure 2 through 6. If they are omitted, the operation to assign a LD and LD set on NEC Storage Manager is necessary after performing the procedure 3. For how to assign a LD and LD set, see manuals of NEC Storage Manager.

---

1. Releasing an allocation of the target machine

   Release the allocation of the machine and make it standby if the target machine is running in the group.

   Activate the Web console.

   Click the icon of the target operation group on the **Operations** tree to display the operation group's detailed information on the Main Window. Select the check box of the host using the target disk volume in the **Host List** and click the **Release Resource** of the Action menu.

2. Deleting the connected disk volume

Click the icon of the target operation group on the **Operations** tree to display the detailed information of the operation group on the Main Window. Display the property of the group / model / host on which the target disk volume was configured, and then select the **Storage** tab. Select the target disk volume on the **Storage List**, click **Delete** of the Action menu, and click **Apply**.

3. Changing the disk volume configuration

For the detailed procedure on how to change the disk volume configuration, see manuals of NEC Storage Manager for NEC Storage Manager. For CLARiiON, see manuals of Navisphere. As for Symmetrix, the information on how to change the disk volume configuration is not disclosed. Please contact Symmetrix support when changing the disk configuration. For NetApp, refer to the NetApp manuals.

4. Collecting the storage information

From the Web Console, display detailed information of the storage on the Main Window by clicking the **Storage** on the **System Resource** tree. Click the **Collect Storage** on the **Operation** menu to collect the storage information.

5. Adding a disk volume

Click the icon of the target storage on the **System Resource** tree to display the detailed information of the storage on the Main Window. Display the **Register Disk Volume** window by clicking the **Register Disk Volume** on the Configuration menu. Select the changed disk volume and click **OK**.

6. Adding a disk volume setting

Click the icon of the target operation group on the **Operations** tree to display the detailed information of the operation group on the Main Window. Display the property of the group / model / host to which you want to connect the disk volume, and select the **Storage** tab. Click the **Add** of the Action menu to display the **Disk Volume Setting**. Select the check box of the edited disk volume and click **OK**.

7. Allocating a machine

Click the target operation group on the **Operations** tree to display the detailed information of the operation group. Select the check box of the host to be allocated a machine in the **Host List** and click the **Allocate Machine** of the Action menu.

9.1.9. Backing up and Restoring a Machine

On the **Operations** view, you can execute backing up a machine and restoring the backed up image to the machine.

Select a managed machine, and execute backup of the Action menu to back up an image of the machine.

- While backing up, the distribution software (DPM scenario) registered as **Backup** in the **Timing of distribution** is used.
- If any distribution software registered as **Backup** in the **Timing of distribution** does not exist, backup is executed with the default setting.

The system works in the similar way to which described above when restoring.

The following explains of executing backup and restoration without specifying distribution software:

Note: Ensure that the number of the target disk is verified using Disk Viewer before backing up and restoring. For details of Disk Viewer, see Section 7.2, "Disk Configuration Check Tool" in *DeploymentManager Reference Guide*.

- Backup

  Execute backup using the scenario, **System_Backup**, located under **Built-in Scenarios** scenario group of DPM. **Built-in Scenarios** scenario group is created during the installation of DPM.

  The default values of **System_Backup** scenario are as follows. Edit the scenario as necessary and change the default values.

  The default values of the backup image stored folder and image file are as follows. MAC address and UUID of a managed machine is automatically added.

  C:\DeployBackup\backup_|*MAC Address*|_|*UUID*|.lbr

  Only the first disk is backed up by default.

  Generation management of backup images is not executed.

- Restoration

  Execute restoration using the scenario, **System_Restore_Unicast**, located under **Built-in Scenarios** scenario group of DPM. **Built-in Scenarios** scenario group is created during the installation of DPM.

When executing restoration using the default scenario, **System_Restore_Unicast**, only the latest image can be restored.

Reference: For how to edit scenarios, see Section 3.13, "Add Scenario" in *DeploymentManager Reference Guide*.

9.1.10. Distributing an Additional Application and Applying a Patch to a Machine

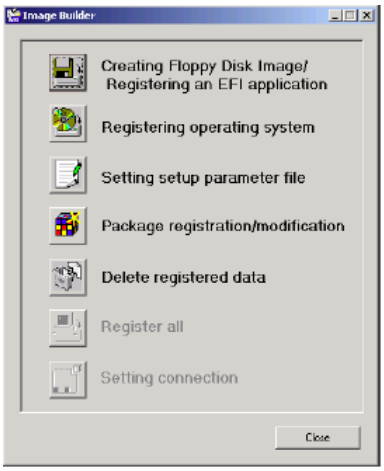
To distribute additional applications and apply patches to a machine, register the packages with DPM Image Builder, and then create a scenario file, with the procedures in this section. After that, register the created scenario file to SystemProvisioning, and execute *Distribute Software*.

Reference:

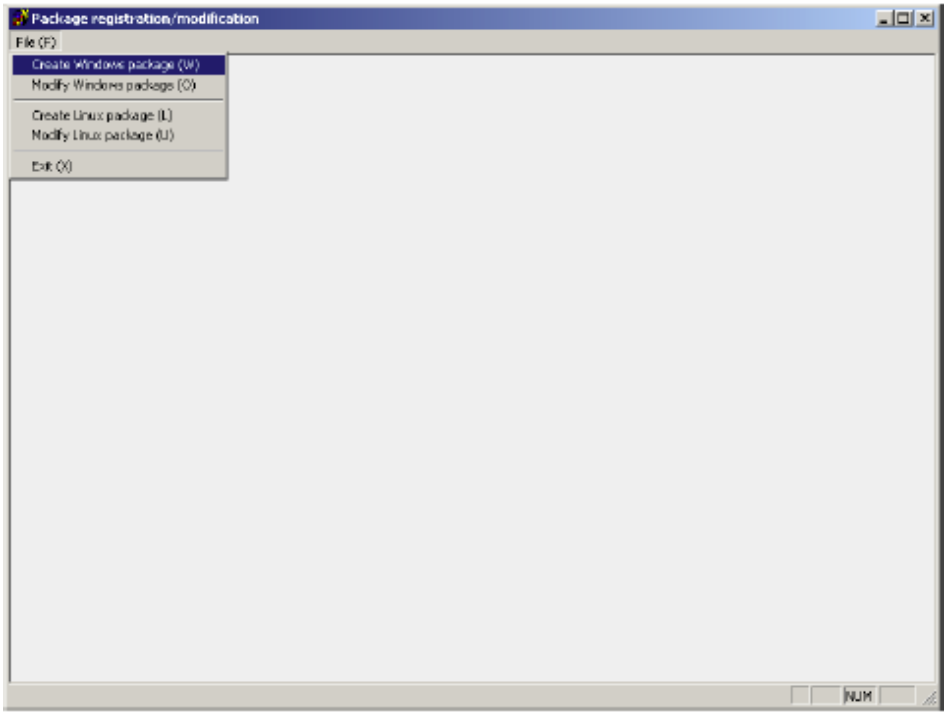
・ For details of registering packages, see Section 5.5, "Package Registration/Modification" in *DeploymentManager Reference Guide*.

・ For details of creating a scenario, see Subsection 3.13.3, "Package Tab" in *DeploymentManager Reference Guide*.

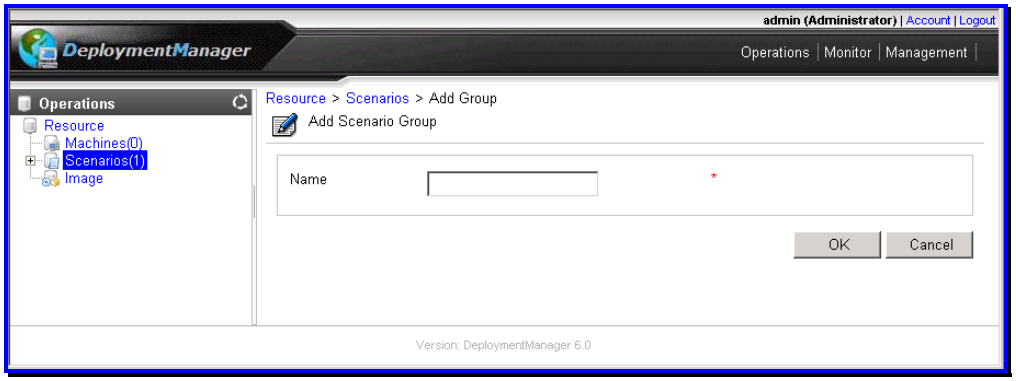
1. Click **Start**, click **All Programs**, click **DeploymentManager** and click **Image Builder** to start Image Builder.
2. From Image Builder, click **Package registration/modification**.



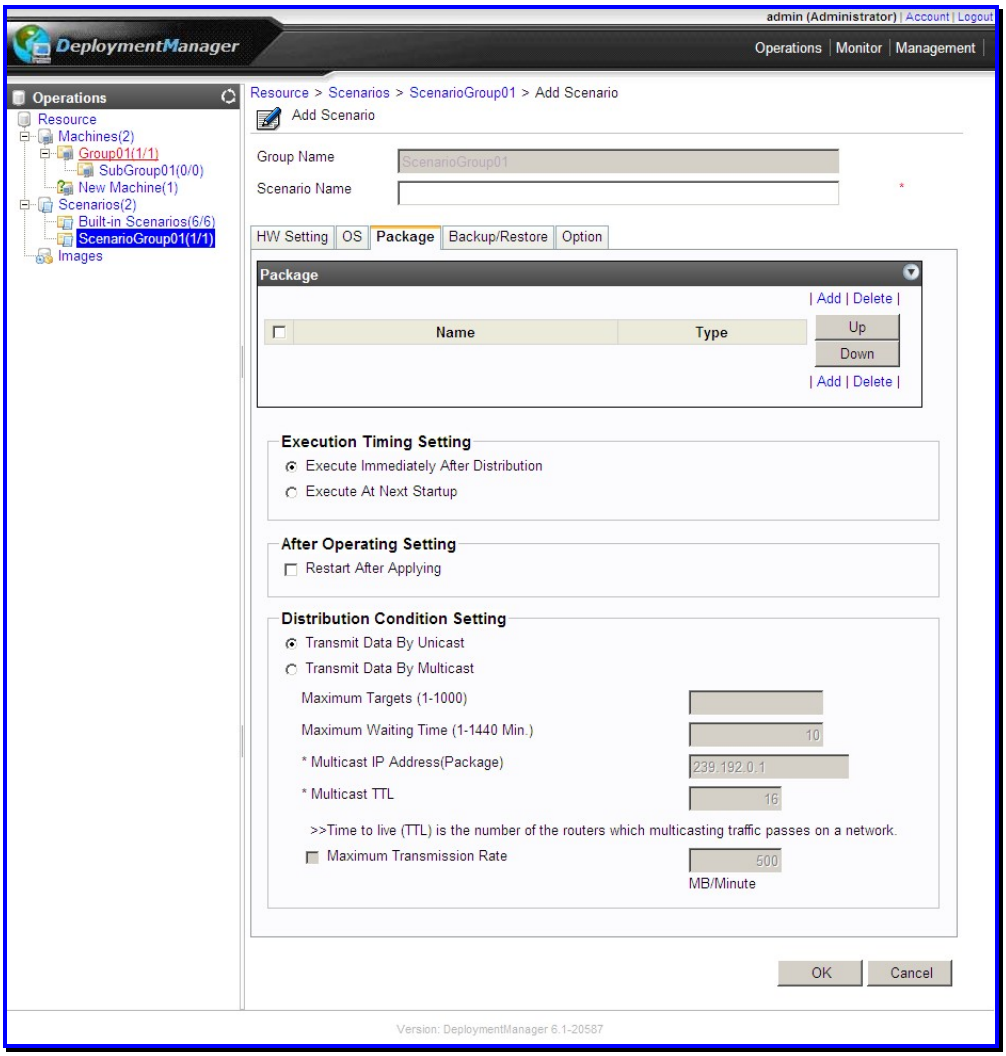
3. The **Package registration/modification** screen appears. From the **File** menu, click **Create *OS* package** to register a package.



4. Start DPM Web Console.
5. Click the **Operations** on the Title bar to switch to the **Operations** view.
6. Create a scenario group. If a scenario group planned to be created already exists, skip to the procedure 13.
7. Click the **Scenarios** from the **Resource** tree.
8. **Group List** appears on the Main Window.
9. Click the **Add Group** on the Configuration menu.
10. **Add Scenario Group** appears on the Main Window.

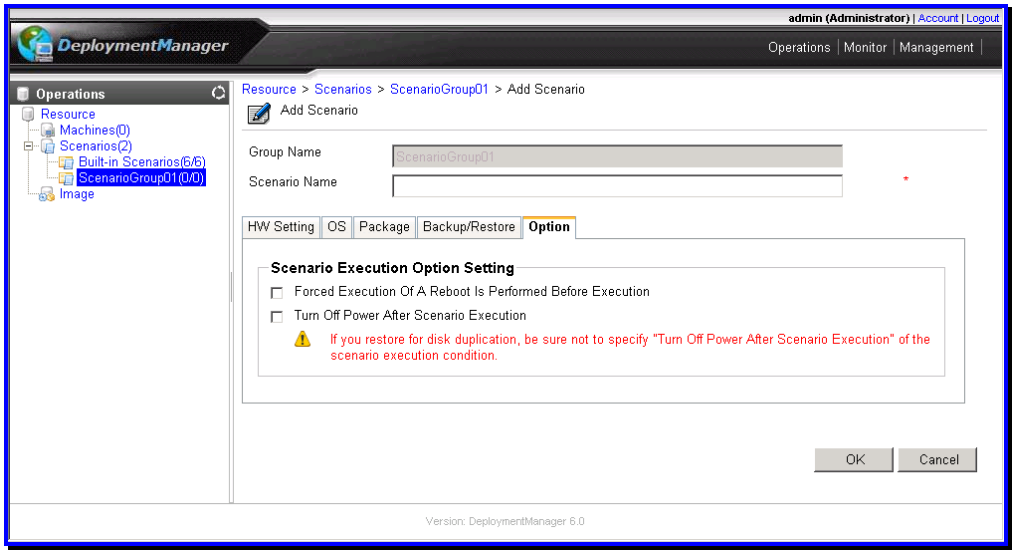


11. Enter the group name into the **Name** box. (Required)
12. Click **OK**.
13. Add the scenario. Click the scenario group to which the scenario is to be added from the **Resource** tree.
14. Details of the group appear on the Main Window.
15. Click the **Add Scenario** from the Configuration menu.
16. **Add Scenario** appears on the Main Window.
17. Select the **Package** tab.



18. Enter the scenario name in the **Scenario Name** box. (Required)
19. Add the registered package to **Package**. (Required)
20. Select and enter each item.

21. To configure the **Scenario Execution Option Setting**, select the **Option** tab. To turn off the machine after executing the scenario, select the **Turn Off Power After Scenario Execution** check box.



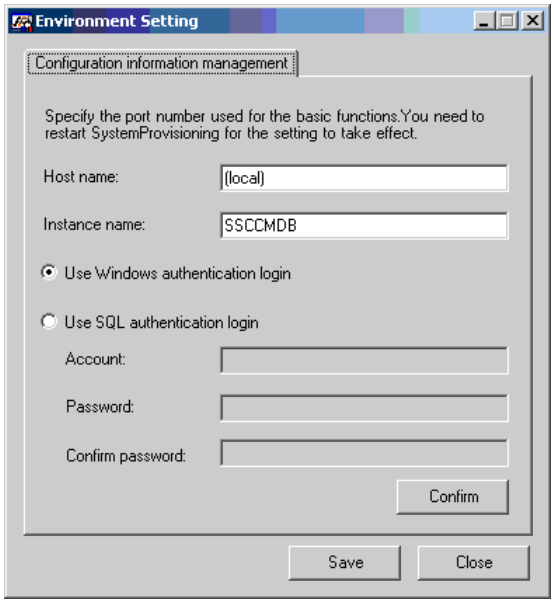
22. Click **OK**.
23. The scenario is created.
24. Start the Web Console of SigmaSystemCenter.
25. Click the **Resource** on the Title bar to switch to the **Resource** view.
26. Click the **Software** in the **Resource** tree.
27. **Summary Information** appears on the Main Window. Click **DPM Collect** on the **Operation** menu.
28. After the job of collecting DPM is complete, click the **Refresh** to update the view to the latest status.
29. **Summary Information** appears on the Main Window. The scenario is added to the **Application and Update** folder.
30. Specify the scenario to distribute it to the machines. For the procedure, see Section 7.10, "Distributing Specified Software to a Machine."

9.1.11. Confirming the Configuration Database Settings

You can confirm the settings of the database, the configuration database that stores the information of system resources managed by SystemProvisioning.

The database settings have completed during installing SystemProvisioning. If you want to change those settings, change them on this dialog.

Run PVMConfig.exe which locates on SystemProvisioning install directory/bin/.



9.2. Adding a Managed Machine After Starting Operation in SigmaSystemCenter

This section provides the procedure to add managed machine after starting operation in SigmaSystemCenter. You need to pay attention for one machine not to be registered as two different machines to SigmaSystemCenter.

9.2.1. Adding a Physical Machine

To add a physical machine as a managed machine, perform the following procedure.

If you want to use a physical machine as a virtual machine server, see Subsection 9.2.2, "Adding a Virtual Machine Server."

1. Register the managed machine to DPM that is registered as a subsystem of SystemProvisioning.
2. Collect the information of the machines in DPM to which you have registered the machine from SystemProvisioning. Click **Management** on the Title bar to switch to the **Management** view.
3. Click the **Subsystem** in the **Management** tree.
4. Details of the subsystem appear on the Main Window. Select the check box of the target DPM, and then, click **Collect** of the Action menu.
5. Check the collected machine. Click **Resource** on the Title bar to switch the **Resource** view, and then, click the **Machine**.
6. Click **Register Machine** on the Configuration menu, and check the **Unmanaged Machine List** to check that the information of the machine registered to DPM is reflected properly.

Note: Because the added machine is not configured as managed target of SystemProvisioning, the machine is displayed on the **Unmanaged Machine List**.

Select a machine to add as a management target and add the machine.

9.2.2. Adding a Virtual Machine Server

To add a virtual machine server as a managed machine, perform the following procedure:

The following procedure is for registering a virtual machine server in VMware (vCenter Server management).

If you want to execute an operation with starting up a virtual machine server, register the virtual machine server to DPM that is registered as a subsystem of SystemProvisioning. Or you can execute the power operation by enabling the power control functionality by OOB Management.

We recommend that you configure both of the settings.

Reference:

- For the procedure of registering a virtual machine server to DPM, see Subsection 3.7.4, "Registering a Managed Machine to DPM."
- For the details of the setting to enable the power control functionality by OOB Management, see Section 3.10, "Preparing for the Use of Out-of-Band (OOB) Management."

If you intend to use policies in operation such as failure detection of the virtual machine server (ESX), install NEC ESMPRO Agent to your virtual machine server (ESX). However, NEC ESMPRO Agent cannot be installed to the virtual machine server (ESXi). In this case, monitoring virtual machine servers by working with vCenter Server should be enabled.

1. Install DPM Client and NEC ESMPRO Agent to the virtual machine server (ESX).
2. Configure the OOB settings for the virtual machine server.
3. Add the virtual machine server to the virtual management environment software which is registered as the subsystem of SystemProvisioning. Click **Virtual** on the Title bar to switch to the **Virtual** view.
4. Click the icon of the DataCenter where the virtual machine server will be added to in the **Virtual** tree.
5. Click **Add VM Server** on the Configuration menu to add the virtual machine server.
6. Register the virtual machine server to DPM.
7. Click **Management** on the Title bar to switch to the **Management** view.
8. Click the **Subsystem** in the **Management** tree.
9. Details of the subsystem appear on the Main Window. Select the check box of the target DPM, and then, click **Collect** of the Action menu.
10. Check the collected machine. Click **Resource** on the Title bar to switch the **Resource** view, and then, click the **Machine**.
11. The virtual machine server is added as a management target of SystemProvisioning. Click **Resource** on the Title bar to switch to the **Resource** view. Click the **Machine**.
12. Confirm that the registered virtual machine server name is not registered doubly and its MAC address and UUID are registered correctly.
13. Register the OOB account. Click **Property** on the Configuration menu.
14. Click Add in the Account List on the Account tab to add the account.

9.2.3. Registering a Created Virtual Machine

If you register a virtual machine from SystemProvisioning, the created virtual machine is added as a management target of SystemProvisioning automatically. In addition, if you select the check box on the Edit Datacenter window in the Virtual view, a virtual machine which belongs to the target datacenter becomes a target.

To register a created virtual machine individually as a management target, perform the following procedure:

1. Collect the information of the virtual machine server on which virtual machines exist. Click **Management** on the Title bar to switch to the **Management** view.
2. Click the **Subsystem** in the **Management** tree.
3. Details of the subsystem appear on the Main Window. Select the check box of the target virtual environment management software, and then, click **Collect** of the Action menu.
4. Check the collected machine. Click **Resource** on the Title bar to switch the **Resource** view, and then, click the **Machine**.
5. Click **Register Machine** on the Configuration menu, click the **Unmanaged Machine List**, and check that the information of the machine registered to the virtual environment management software is reflected properly.

Note: Because the added machine is not configured as managed target of SystemProvisioning at this point, the machine is displayed on the **Unmanaged Machine List**.

---

6. If you want to install applications and patches to the virtual machine, register the virtual machine to DPM that is registered as a subsystem of SystemProvisioning.

Note: Check that the UUID is registered on the Add Machine window on the DPM Web Console. If the UUID is not registered, enter the UUID manually.

---

7. Collect the information of the machines in DPM to which you have registered the machine from SystemProvisioning. Click **Management** on the Title bar to switch to the **Management** view.
8. Click the **Subsystem** in the **Management** tree.
9. Details of the subsystem appear on the Main Window. Select the check box of the target DPM, and then, click **Collect** of the Action menu.
10. Check the collected machine. Click **Resource** on the Title bar to switch to the **Resource** view, and then, click the **Machine**.

11. Click **Register Machine** on the Configuration menu, click the **Unmanaged Machine List**, and check that the name of the registered virtual machine is not duplicated and the MAC address and UUID are registered.

Note: Because the added machine is not configured as managed target of SystemProvisioning at this point, the machine is displayed on the **Unmanaged Machine List**.

Select the virtual machine to add as a management target and register the virtual machine.

9.3. Working with Service Portal

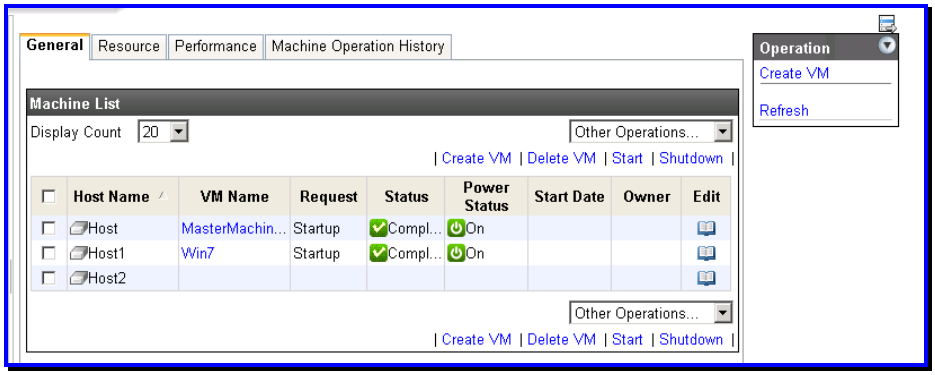
SigmaSystemCenter equips the portal screen, which opens the SigmaSystemCenter's screen to users. In the case you need to create a guest OS immediately, for example the case you must reset the guest OS due to its stalling during operation, Service portal is provided so that users can handle the case like this by themselves without a tenant administrator's help.

You can perform the following operations on the Portal view:

- Create / Delete VM
- Power control (Start / Suspend / Shutdown / Restart / Reset)
- Scale out / Scale in
- Snapshot management
- Showing the screen shot of a virtual machine's console

The following explains each tab on the window:

- General tab

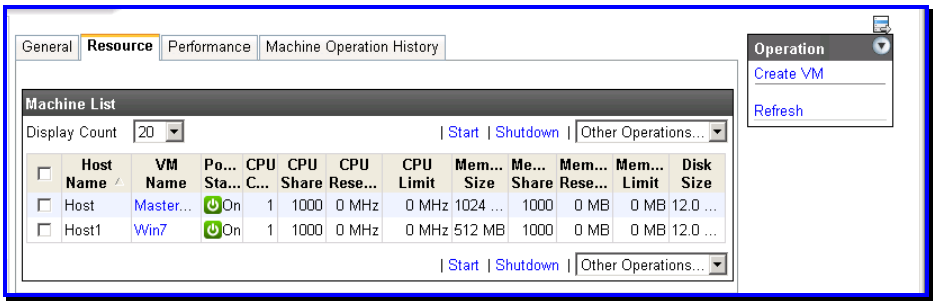


  - Machine List

    On Machine List, you can view such information as: Host Name, VM Name, Request, Status, Power Status, Start Date, and Owner. The Request column shows the latest process to the target virtual machine.

    Details of the virtual machine are provided by clicking on the name of the virtual machine.

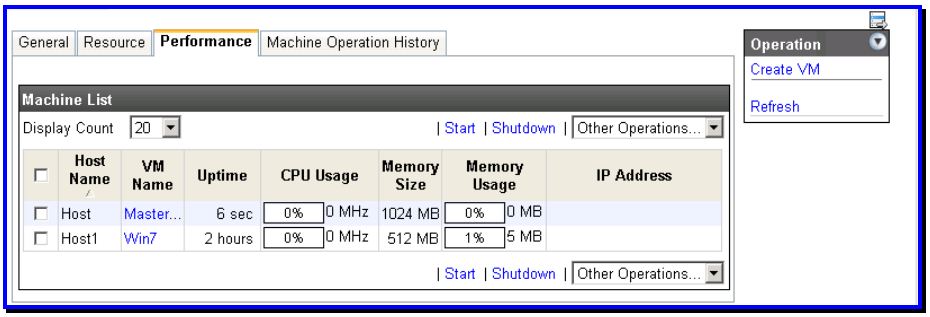
◆ Resource tab



- Machine List

  On Machine List, you can view the resource information of the machine to which resources are already allocated. Details of the virtual machine are provided by clicking on the name of the virtual machine.

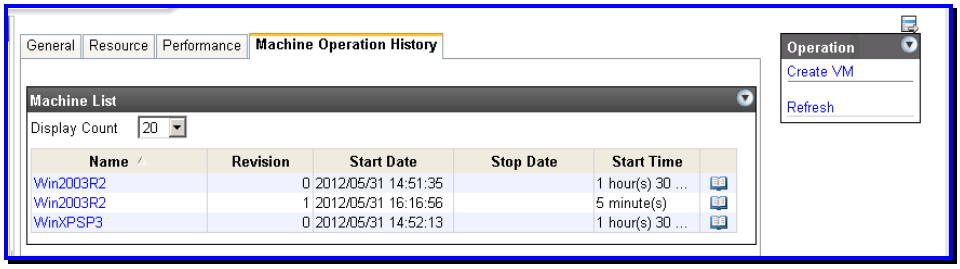
◆ Performance tab



- Machine List

  On Machine List, you can view the performance information of the machine to which resources are already allocated. Details of the virtual machine are provided by clicking on the name of the virtual machine.

- Machine Operation History



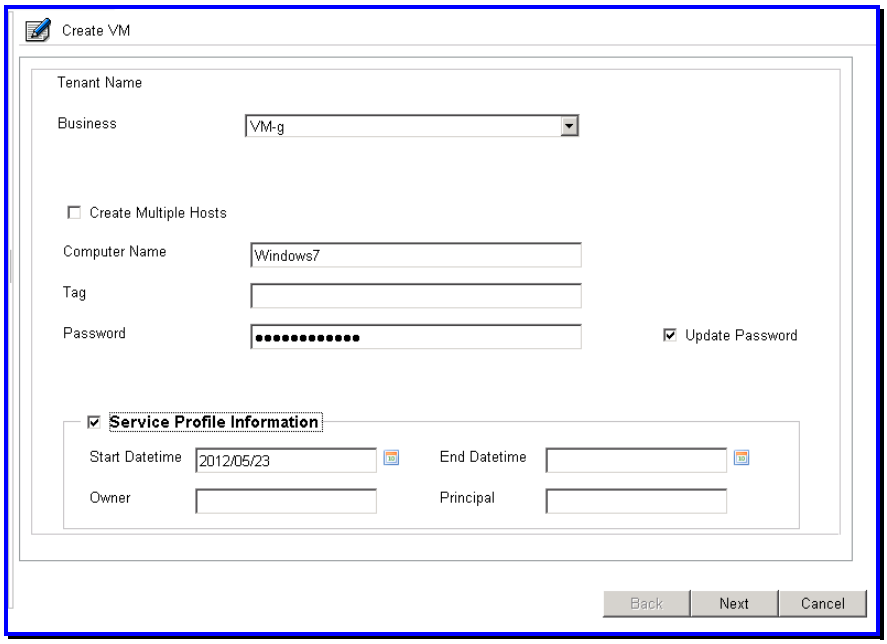
  - Machine List

    On Machine List, you can view the operation history of the machine to which resources are already allocated. The list of operation history of the virtual machine is provided by clicking on the name of the virtual machine.

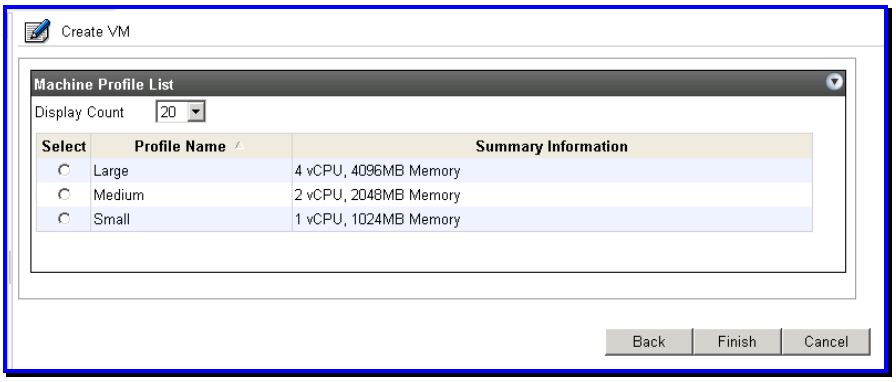
9.3.1. How to Create a Virtual Machine on the Portal View

Create a virtual machine following the procedures below:

1. Click **Portal** on the title bar to switch to the **Portal** view.
2. Select the host on which you want to create a virtual machine, and click **Create VM** on the **Action** menu or the **Operation** menu.
3. The **Create VM** screen appears on the main window.



4. Select the task to create a virtual machine from the **Business** box. If you want to create multiple virtual machines, select the **Create Multiple Hosts** check box.
5. Type the name of the host to the virtual machine in the **Computer Name** box.
6. Type the tag (keyword) of the virtual machine in the **Tag** box.
7. Select the **Update Password** check box and set the password for the virtual machine.
8. If you want to configure the service profile information, select the **Service Profile Information** check box and specify the information of: **Start Datetime**, **End Datetime**, **Owner**, and **Principal**. These are not required information, so you can specify them as necessary.
9. Click **Next**.
10. The **Machine Profile List** appears on the main window.

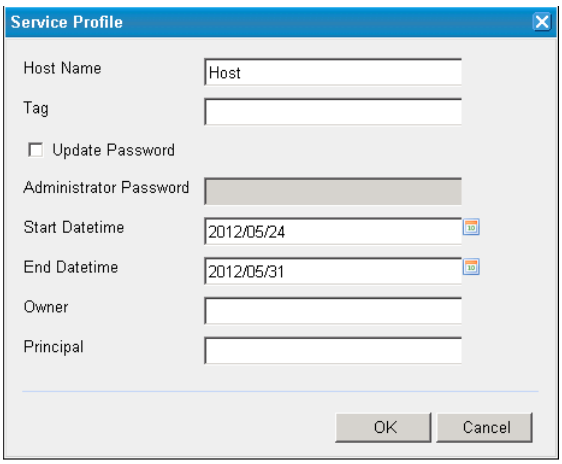


11. Select the machine profile you want to configure on the **Machine Profile List**, and click **Finish**.

9.3.2. How to Edit the Service Profile

You can edit the service profile on the Portal view. To do so, perform the following procedure:

1. Click **Portal** on the title bar to switch to the **Portal** view.
2. Select the host whose service profile you want to edit on **Machine List**, and click **Edit**.
3. The **Service Profile** dialog box appears.



The **Service Profile** dialog box shows the current settings. Modify any setting you want.

Only if the host is just defined and any resource is not allocated to it, you can edit **Host Name**, **Administrator Password**, and **Start Datetime** of the host.

9.4. Connecting to a Console

Note: Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

9.4.1. Connecting to a Serial Console of a Physical Machine

Start the application from the Web Console, and then, operate a managed machine on the serial input / output redirected through BMC of the managed machine. The name of the application is *SOL Console*.

The serial console uses IPMI Serial Over Lan (SOL) and opens a SOL session to BMC of a managed machine to communicate with.

Output from the serial of the managed machine appears on the screen, and keyboard input on the screen is sent to the managed machine as the input for serial.

When the application is launched, it connects to the managed machine. If another SOL session is already open to the managed machine from another place, a dialog asking you whether you take the session or not appears. Be aware that the SOL session is disconnected when the session is taken after selecting to take the session.

- System Requirements

  Target managed machine

  - A physical machine with BMC that is compliant with IPMI ver. 2.0 and SOL

- Preparation (for a management server)

  To connect to a serial console, the following pieces of software are required:

  - .NET Framework 3.5 Service Pack 1
  - ClickOnce Plug-in (for Firefox)

  Note:

  ▪ Install them in each management server to start the Web Console.

  ▪ To start the Web Console on the management server where SystemProvisioning is installed, install only ClickOnce Plug-in in addition.

  For Firefox, install ClickOnce Plug-in with the following procedure:

  For Internet Explorer, installation of ClickOnce Plug-in is unnecessary.

1. Open the following URL in a Firefox window.

   https://addons.mozilla.org/ja/firefox/addon/9449/

2. Click **Click Continue to Download**.
3. Click **Accept and Install**.
4. Click **Install Now**.
5. Click **Restart Firefox**.

- Preparation (for a managed machine)

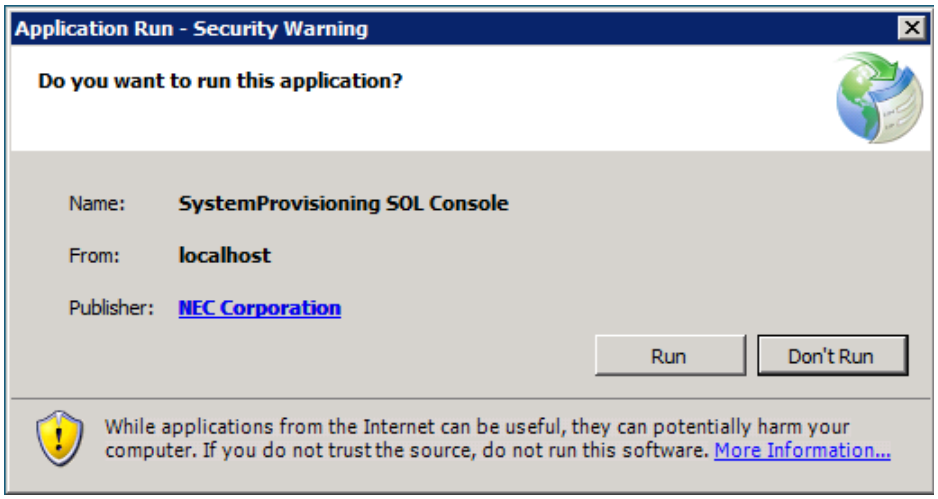
  For the setting procedure to use SOL, see Subsection 3.10.6, "Configuring Serial Over Lan (SOL)."

- Connecting to a console

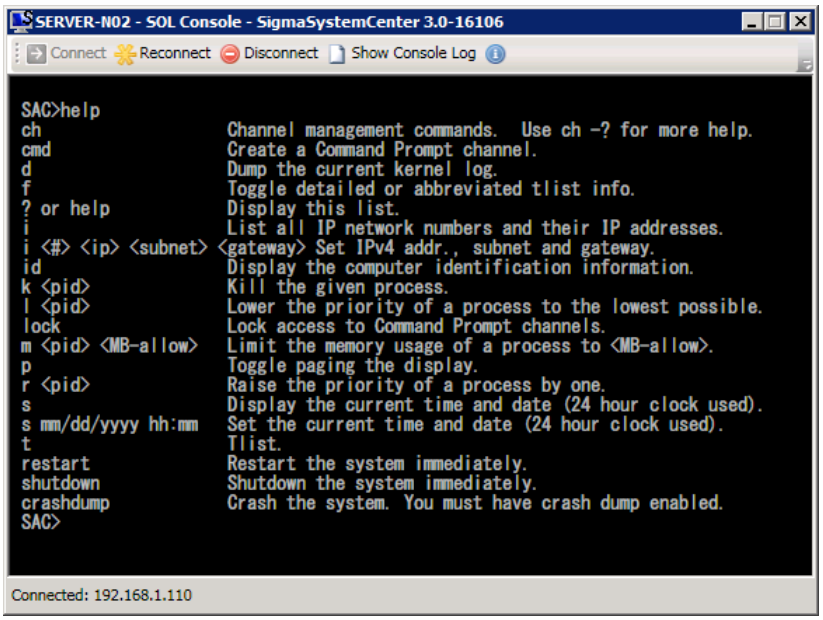
  Connect to a console with the following procedure:

Note: In order to connect to a serial console, a user must have the Administrator privileges.

1. Click the **Resource** on the Title bar to switch to the **Resource** view.
2. Click the icon of the physical machine to connect to in the **Resource** tree.
3. Click the **Console** on the Configuration menu. At the first launch, the following security alert appears. Confirm that the **Publisher** is **NEC Corporation**, and click **Run**.


Application Run - Security Warning
Do you want to run this application?
Name: SystemProvisioning SOL Console
From: localhost
Publisher: NEC Corporation
Run
Don't Run
While applications from the Internet can be useful, they can potentially harm your computer. If you do not trust the source, do not run this software. More Information...

4. The application starts and connects to a serial console of the managed machine.


SERVER-N02 - SOL Console - SigmaSystemCenter 3.0-16106
Connect
Reconnect
Disconnect
Show Console Log
SAC>help
ch Channel management commands. Use ch -? for more help.
cmd Create a Command Prompt channel.
d Dump the current kernel log.
f Toggle detailed or abbreviated tlist info.
? or help Display this list.
i List all IP network numbers and their IP addresses.
i <#> <ip> <subnet> <gateway> Set IPv4 addr., subnet and gateway.
id Display the computer identification information.
k <pid> Kill the given process.
l <pid> Lower the priority of a process to the lowest possible.
lock Lock access to Command Prompt channels.
m <pid> <MB-allow> Limit the memory usage of a process to <MB-allow>.
p Toggle paging the display.
r <pid> Raise the priority of a process by one.
s Display the current time and date (24 hour clock used).
s mm/dd/yyyy hh:mm Set the current time and date (24 hour clock used).
t Tlist.
restart Restart the system immediately.
shutdown Shutdown the system immediately.
crashdump Crash the system. You must have crash dump enabled.
SAC>
Connected: 192.168.1.110

◆ Enabling or disabling the console

You can enable and disable the console by specifying a value in the following file. After changing the setting, execute recycling or stopping and restarting the application pool (ProvisioningPool) on the Internet Information Service (IIS).

SystemProvisioning installation folder\
Provisioning\App_Data\Config\CustomizationConfig.xml

Note: The default installation path is "%ProgramFiles%\NEC\PVM."

true: Enables the machine console

false: Disables the machine console

```
<Configuration>
  <Common>
    <Console >
      <EnableConsole>true</EnableConsole>
    </Console>
  </Common>
</Configuration>
```

The default value is "true".

- Caution notes
  - Configure the environment so that **Connected** can be displayed for **Connection Status** of Out-of-Band Management connection status on the details of the selected machine.
  - Use this functionality in a network environment where the machine displaying the console can directly connects to the managed machine.
  - SOL output displays only new data sent after the connection is established. If nothing is displayed although the managed machine is already configured and the power is ON after the establishing the connection, try pushing **Enter** key so that the managed machine will output some data.

9.4.2. Connecting to a Console of a Virtual Machine on VMware

With SystemProvisioning, you can connect to a console of a virtual machine, and operate the virtual machine. Perform the following procedure to connect to the console:

- System Requirements

  You can connect to a console of a virtual machine on:
  - VMware ESX / ESXi 3.5
  - VMware ESX / ESXi 4.0
  - VMware ESX / ESXi 4.1

  The following browsers are supported:
  - For VMware ESX / ESXi 3.5
    - Firefox
  - For VMware ESX / ESXi 4.0
    - Internet Explorer 7
    - Internet Explorer 8
  - For VMware ESX / ESXi 4.1
    - Internet Explorer 7
    - Internet Explorer 8
    - Firefox

  The environment must be able to connect directly to ESX or ESXi from a browser. (Port: 902)

- Preparation

  In order to connect to a console of a virtual machine, you need to install plugin on a browser.

With ESX3.5 or earlier, the plugin are installed automatically when making connection to the virtual machine console. If you cannot display the console, connect to the Web console of ESX itself with the following procedure after installing the plugin and check if the virtual machine console is displayed.

With ESX4.0, enable the Web Access with the following procedure because it is not enabled shortly after ESX installation. However, there is no problem with disabling it after the plugin is installed.

1. Log into an ESX host as root.
2. Enter the following command to check if the Web Access service is executed.

```
service vmware-webAccess status
```

3. If the Web Access service is not executed, enter the following command to start the Web Access service.

```
service vmware-webAccess start
```

Reference: For the details, see *vSphere Web Access Administrator's Guide* of VMware, Inc.
http://www.vmware.com/pdf/vsphere4/r40/vsp_40_web_access.pdf

To install the plugin on a browser, perform the following procedure:

1. Connect to the Web console of ESX from a browser.
   https://*your esx-ip-address or hostname*/ui/

Note: When connecting with a hostname, the machine that is to connect to the destination must be able to resolve the hostname.

2. Log in using a user name (root) and password of the ESX.
3. A prompt to install the plugin appears. Click it to install the plugin.

◆ Connecting to a console

Perform the following procedure to connect to the virtual machine console:

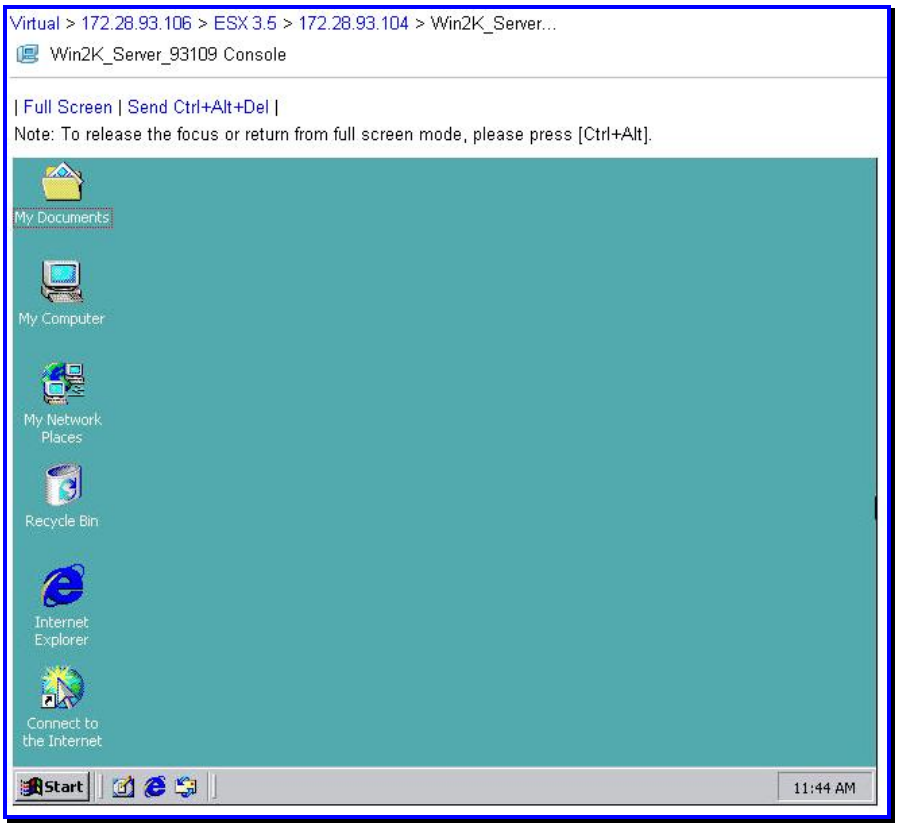
Note:

▪ Turn on the virtual machine before connecting to the virtual machine console.

▪ In order to connect to the virtual machine console, you need to have Administrator privileges.

1. Click **Virtual** or **Resource** on the Title bar to switch to the **Virtual** or **Resource** view.
2. Click the icon of the virtual machine to connect to in the tree.
3. Click **Console** on the Configuration menu.
4. A console of the selected virtual machine appears. With ESX 3.5, it appears on the Main Window. With ESX 4.0, VMware Remote Console is launched.

   With ESX 3.5, the following screen appears.


Virtual > 172.28.93.106 > ESX 3.5 > 172.28.93.104 > Win2K_Server...
Win2K_Server_93109 Console
| Full Screen | Send Ctrl+Alt+Del |
Note: To release the focus or return from full screen mode, please press [Ctrl+Alt].
My Documents
My Computer
My Network Places
Recycle Bin
Internet Explorer
Connect to the Internet
Start
11:44 AM

Note: With ESX 3.5, note the following points:

- The size of the console is the same as the resolution of the virtual machine.
- To display the console in the full screen mode, click **Full Screen**. To exit from the full screen mode of the VM Console, press **Ctrl** + **Alt**.
- If you click **Send Ctrl + Alt +Del**, the system sends **Ctrl + Alt + Del** to the virtual machine.

◆ Enabling or disabling the console

You can enable and disable the console by specifying a value in the following file. After changing the setting, execute recycling or stopping and restarting the application pool (ProvisioningPool) on the Internet Information Service (IIS).

SystemProvisioning installation folder\
Provisioning\App_Data\Config\CustomizationConfig.xml

Note: The default installation path is "%ProgramFiles%\NEC\PVM."

true: Enables the virtual machine console

false: Disables the virtual machine console

```
<Configuration>
    <Common>
      <Console >
        <EnableConsole>true</EnableConsole>
      </Console>
    </Common>
</Configuration>
```

The default value is "true."

- Caution notes
  - If you execute Move VM, Shutdown, or Restart towards a virtual machine, the console connection is disconnected. After the process completes, connect to the virtual machine again.
  - SystemProvisioning does not support the exclusion control of console connection.
  - There is a case that a console is not displayed. In that case, try again.

9.4.3. Connecting to a Console of a Virtual Machine on XenServer, KVM or Hyper-V

With SystemProvisioning, you can connect to a console of a virtual machine and operate the virtual machine. Perform the following procedure to connect to the console:

- Preparation (for a machine on which the Web console runs)

  To connect to a serial console, the following pieces of software are required:

  - .NET Framework 3.5 Service Pack 1
  - ClickOnce Plug-in (for Firefox)

Note: .NET Framework 3.5 Service Pack 1 is already installed in the SigmaSystemCenter management server. To launch the Web Console on the SigmaSystemCenter management server, install only ClickOnce Plug-in in addition.

For Firefox, install ClickOnce Plug-in with the following procedure:
For Internet Explorer, installation of ClickOnce Plug-in is unnecessary.

1. Open the following URL in a Firefox window.

   https://addons.mozilla.org/ja/firefox/addon/9449/

2. Click **Click Continue to Download**.
3. Click **Accept and Install**.
4. Click **Install Now**.
5. Click **Restart Firefox**.

◆ Preparation (for a managed machine)

For KVM, add the **display VNC** to a virtual machine with the following procedure:
For XenServer and Hyper-V, the setting of a virtual machine is unnecessary.

1. Launch virt-manager to open details of the virtual machine.
2. Click **Add hardware**.
3. In **Hardware type**, select **Graphics device** and click **Forward**.
4. Configure **Virtual Display** as follows and click **Forward.**

   - Select the **VNC Server** in the **Type** list.
   - Select the **Listen on all public network interfaces** check box of the **Address.**
   - Select the **Automatically allocated** for the **Port.**
   - Enter arbitrary password in the **Password** box.

Note: If display VNC is already added, verify that Address is "0.0.0.0". If Address is "127.0.0.1", delete the virtual display and re-configure with the above procedure.

◆ Connecting to a console

Perform the following procedure to connect to the virtual machine console:

Note:

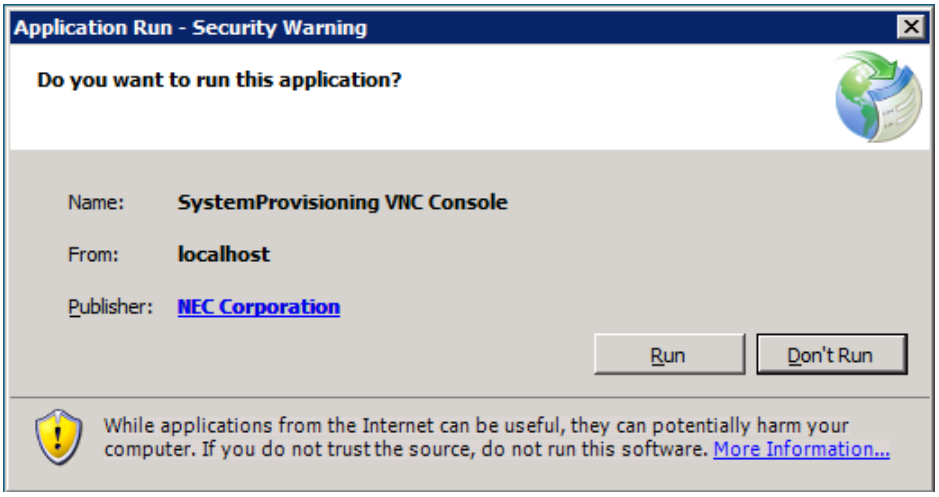
▪ Turn on the power of the virtual machine before connecting to the virtual machine console.

▪ In order to connect to the virtual machine console, you need to have Administrator privileges.

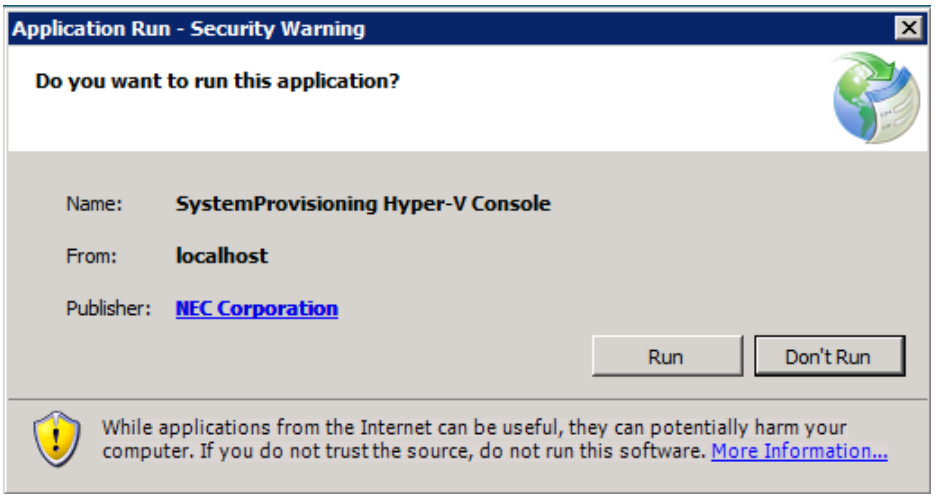
1. Click **Virtual** or **Resource** on the Title bar to switch to the **Virtual** or **Resource** view.
2. Click the icon of the virtual machine to connect to in the tree.
3. Click **Console** on the Configuration menu.

   At the first launch, the following security alert appears. Confirm that the **Publisher** is **NEC Corporation**, and click **Run**.

   For XenServer and KVM, the following dialog appears:

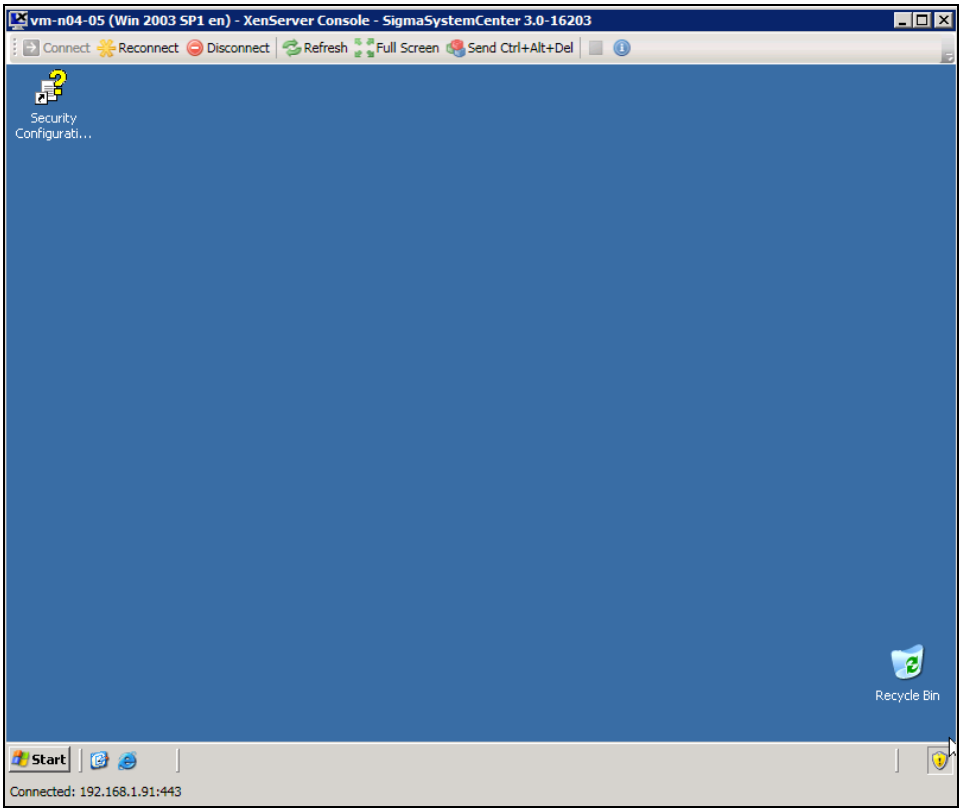

Application Run - Security Warning
Do you want to run this application?
Name: SystemProvisioning VNC Console
From: localhost
Publisher: NEC Corporation
Run
Don't Run
While applications from the Internet can be useful, they can potentially harm your computer. If you do not trust the source, do not run this software. More Information...

   For Hyper-V, the following dialog appears:


Application Run - Security Warning
Do you want to run this application?
Name: SystemProvisioning Hyper-V Console
From: localhost
Publisher: NEC Corporation
Run
Don't Run
While applications from the Internet can be useful, they can potentially harm your computer. If you do not trust the source, do not run this software. More Information...

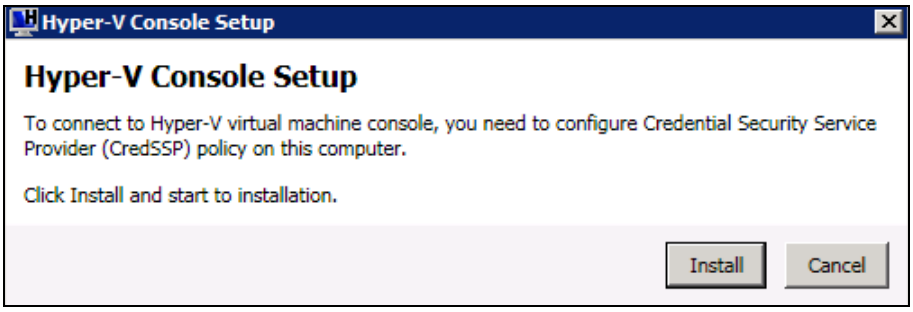
4. The application starts and connects to a serial console of the managed machine.

   For XenServer and KVM, the following screen appears:

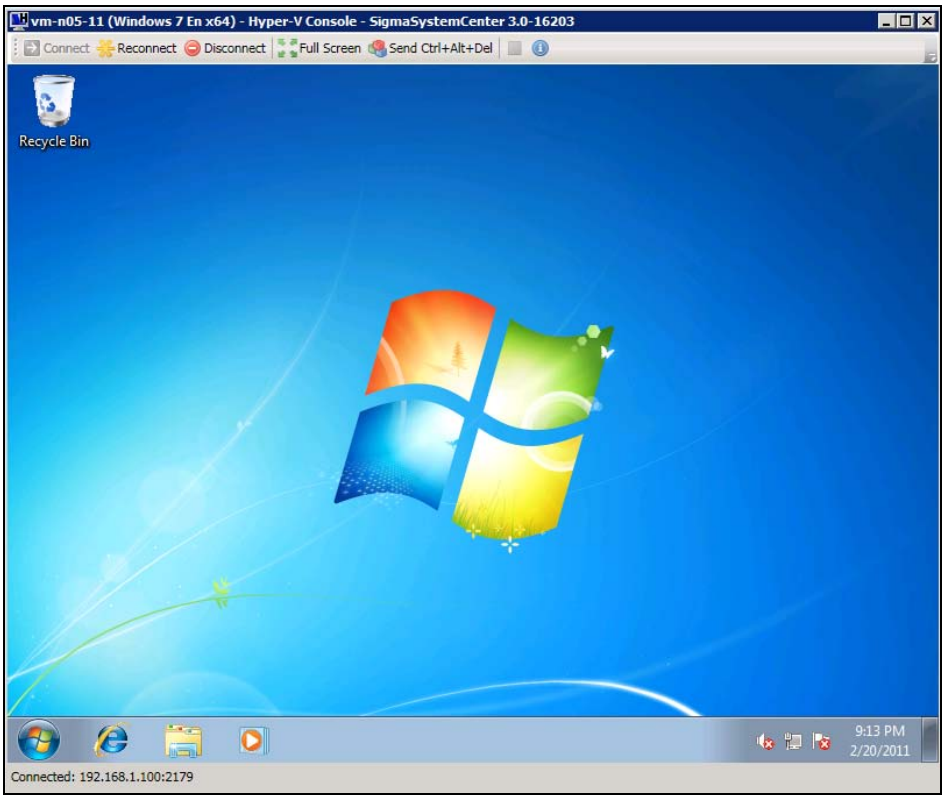


   At the first launch of Hyper-V, the following screen appears:

   Click **Install** to configure Credential Security Service Provider (CredSSP) policy.


Hyper-V Console Setup
Hyper-V Console Setup
To connect to Hyper-V virtual machine console, you need to configure Credential Security Service Provider (CredSSP) policy on this computer.
Click Install and start to installation.
Install
Cancel

After installation or for second launch of Hyper-V or later, the following screen appears:



- Enabling or disabling the console

  You can enable and disable the console by specifying a value in the following file. After changing the setting, execute recycling or stopping and restarting the application pool (ProvisioningPool) on the Internet Information Service (IIS).

  SystemProvisioning installation folder\
  Provisioning\App_Data\Config\CustomizationConfig.xml

  Note: The default installation path is "%ProgramFiles%\NEC\PVM".

  true: Enables the machine console

  false: Disables the machine console

```
<Configuration>
  <Common>
    <Console >
      <EnableConsole>true</EnableConsole>
    </Console>
  </Common>
</Configuration>
```

The default value is "true".

- Caution notes
  - If a virtual machine is shut down from a virtual machine console, the power status is not reflected to SystemProvisioning. In this case, collect the information of the virtual machine from the Web Console.
  - If you execute Move VM, Shutdown, or Restart towards a virtual machine, the console connection is disconnected. After the process completes, connect to the virtual machine again.
  - The launched application must be able to connect directly to the virtual machine server. The default port numbers for the connection are as follows:

Virtual machine infrastructure	Port number
XenServer	443
KVM	Ports are scanned from 5900 and available ports are assigned automatically. A port number must be prepared for each running virtual machine.
Hyper-V	2179

  - For Xen Server
    - Multiple consoles can be connected simultaneously, but the result of operating a console is reflected to all consoles.
    - If a machine on which the Web console runs cannot connect to the internet, it may take several tens of seconds to connect to a console.
    - If the guest OS is running Linux, only the text console can be operated.
  - For KVM
    - Multiple consoles can be connected simultaneously, but the result of operating a console is reflected to all consoles.
    - A virtual display must be added in the virtual machine setting.
  - For Hyper-V
    - Only one session can connect to the console at the same time. If any session is already connected, the console started before is disconnected.
    - A virtual machine console of a virtual machine with enabling RemoteFX 3D video adapter cannot be connected.
    - If a machine on which the Web console runs is running Windows Server 2003, it cannot connect to virtual machine consoles.
    - If a machine on which the Web console runs cannot connect to the internet, it may take less than a minute to connect to a console.
    - At the first launch, the setting of Credential Security Service Provider (CredSSP) policy must be configured. This setting requires the Windows Administrator privileges.

9.4.4. Displaying a Screenshot of a Virtual Machine Console

To display a screenshot of a virtual machine console on the Web Console, perform the following procedure:

Note: Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

- Displaying a screenshot of a virtual machine console

  Note: Administrator privilege is required to display a screenshot of a virtual machine console.

  1. Click the **Virtual** on the Title bar to switch to the **Virtual** view.
  2. Click the icon of a target machine on the **Virtual** tree.
  3. A screenshot of a console appears on the **Screen** menu.

- Enabling or disabling the screenshot feature

  You can enable or disable the console by specifying a value in the following file. After changing the setting, execute recycling or stopping and restarting the application pool (ProvisioningPool) on the Internet Information Service (IIS).

  SystemProvisioning installation folder\
  Provisioning\App_Data\Config\CustomizationConfig.xml

  Note: The default installation path is "%ProgramFiles%\NEC\PVM."

```
<Configuration>
  <Common>
    <Console>
      <EnableScreenshot>true</EnableScreenshot>
    </Console>
  </Common>
</Configuration>
```

  true : Enables the screenshot feature of a virtual machine console (default value).

  false : Disable the screenshot feature of a virtual machine console.

- Caution notes
  - When a screenshot of a virtual machine console appears, if power off appears on the Web Console, collect the virtual machine information.
  - A screenshot of a console might not appear. In that case, retry it.

9.5. Managing a Machine Using a Smart Group

SigmaSystemCenter creates the following standard smart groups during the installation:

Smart Group Name	Functionality	Edit / Delete
New Machine	Extracts the automatically registered new machine.	No
Having Problems	Extracts the machines having problems.	Yes
In Maintenance	Extracts the machines in maintenance.	Yes
Powered off	Extracts the machines in power off status.	Yes
Sensor Alert	Extracts the machines having sensor alert.	No
Free physical machines	Extracts the unused physical machines.	Yes

Smart groups with customized search conditions can be used in addition to the above automatically registered smart groups.

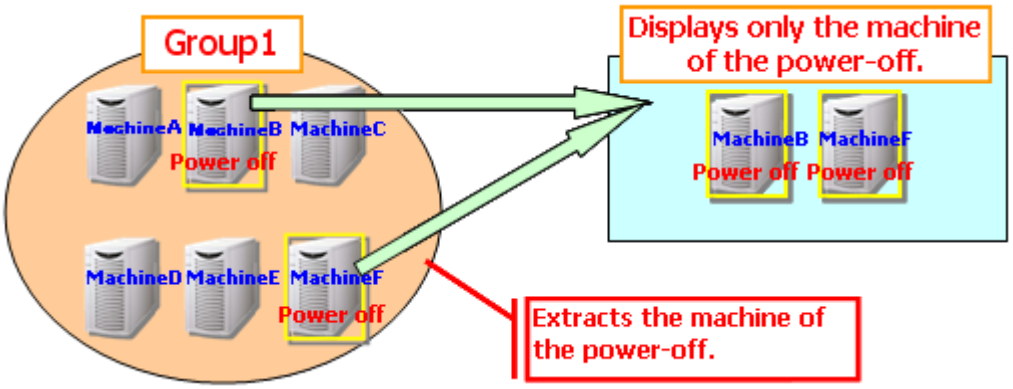
Reference: See Subsection 9.5.1, "Adding a Smart Group" for how to add a smart group.

Furthermore, a smart group can belong to a **Machine** or a **Resource Group** in the **Resource** tree. The search scopes changes according to a place to which a smart group belongs as follows:

- Machine: All machines (without limitation)
- Resource group: Limited to a resource group to which a smart group belongs to.

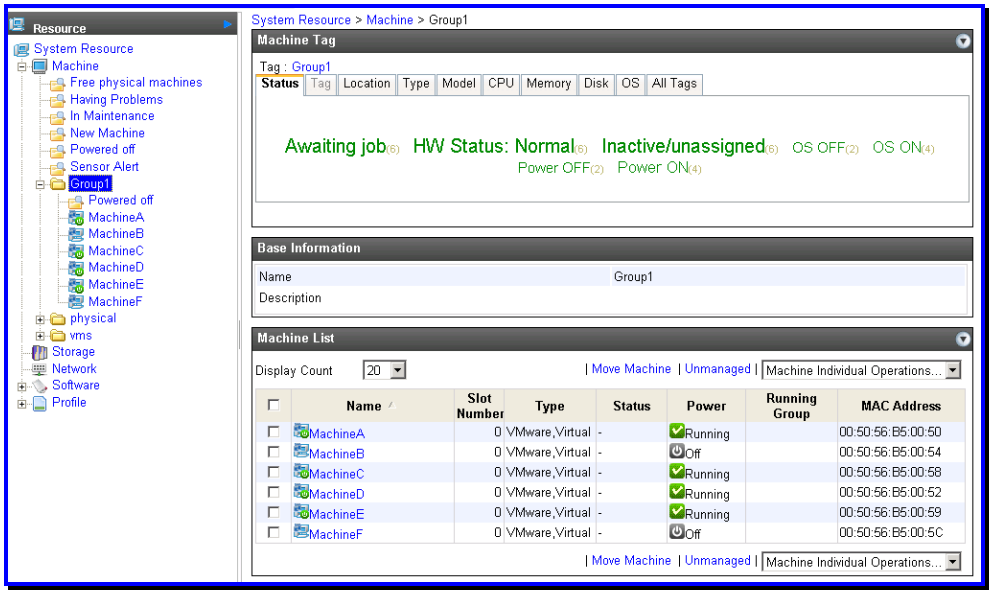
Note: Because a smart group is a logical group, a machine cannot be located.

The following image is an example that extracts powered OFF machines from the resource group, Group1, using a smart group, and executes Power ON:



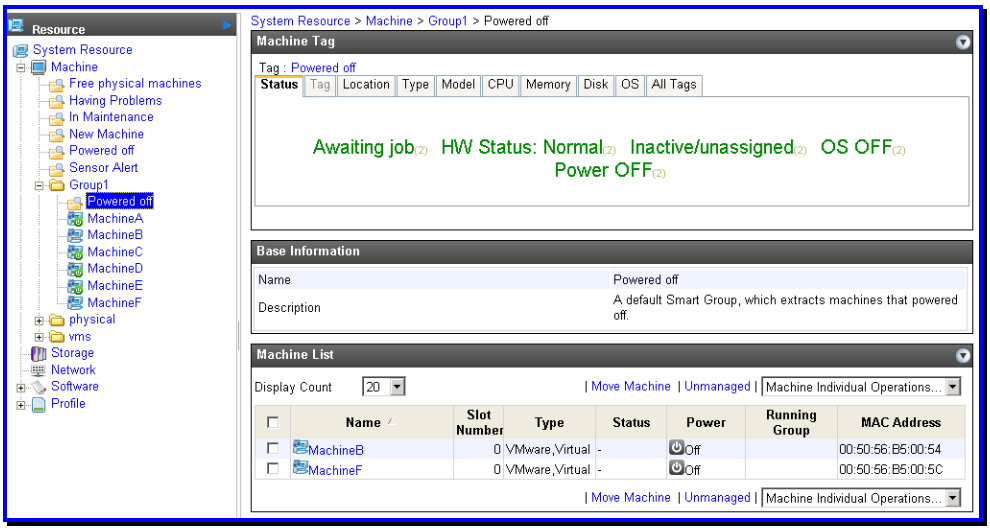
◆ If you selected the resource group, Group1, in the Resource tree

Select a machine powered OFF to execute Power ON in the list of all the machines belonging to the Group1.



- If you selected a smart group (Powered OFF) belonging to the resource group, Group1

  Because only the powered OFF machines belonging to the Group1 are displayed in a list, you can execute Power On collectively without searching powered OFF machines.



9.5.1. Adding a Smart Group

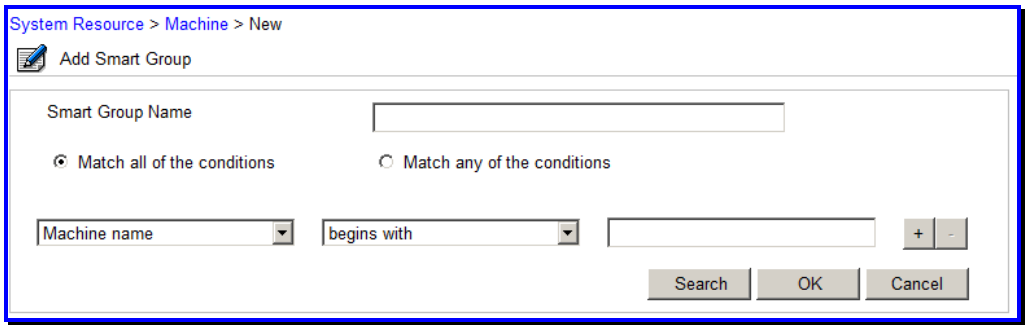
A smart group is a logical group that retains search criteria. By using a smart group, the machine that matches the search criteria of the smart group can be selected in a list.

Follow the procedures below to specify the criteria of the target managed machine and to add the smart group.

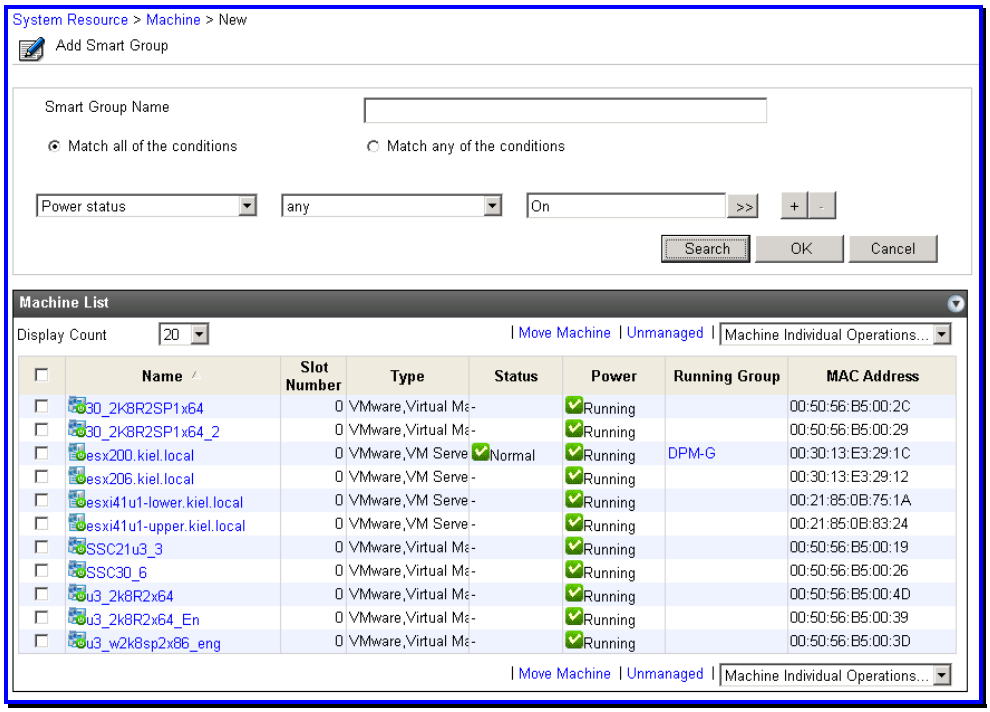
Note: The duplicate name of smart groups, resource groups, and racks is not allowed in the same level, and resource groups and smart groups cannot be created under the smart group.

1. Click **Resource** on the title bar to switch to the **Resource** view.
2. Click **Machine** or the icon of the target resource group on the **System Resource** tree.
3. Click **Add Smart Group** on the **Configuration** menu.

4. The **Add Smart Group** screen is displayed on the main window.



5. Type the smart group name of the smart group you want to add in the **Smart Group Name**. (Required)
6. Select the search condition to locate the target machine to be added to the smart group. If more search conditions are required, click [**+**] to increase them as needed.



7. Click **OK**.

Note: By clicking **Search,** .the target machines you want to find can be previewed before the smart group is registered. (The target machines that match the search conditions are listed in **Machine List**.)

9.6. Machine Management with Tag Cloud

A tag cloud classifies various types of information of managed machines and displays it.

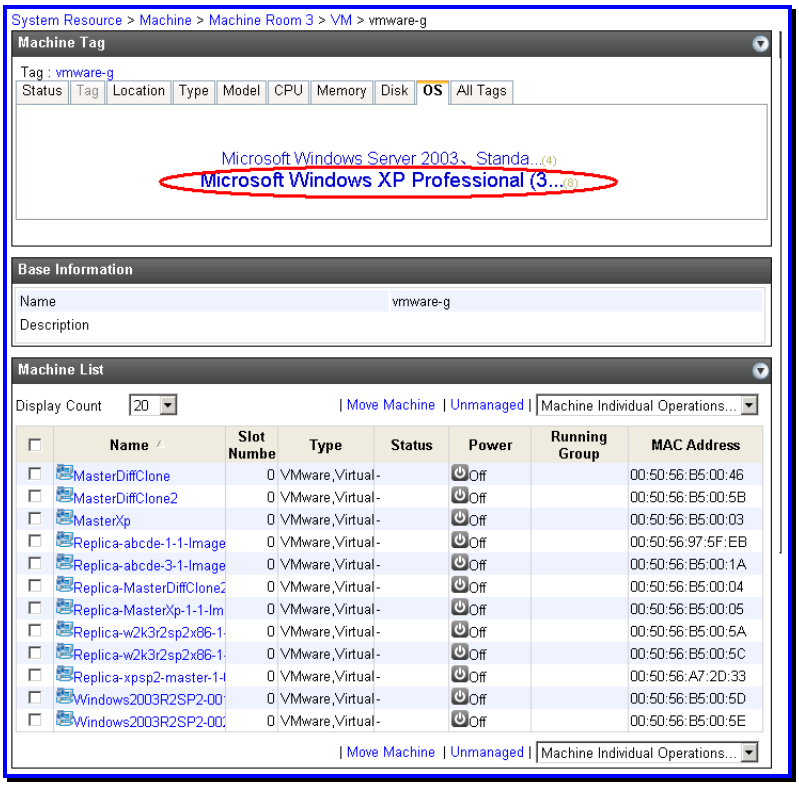
Large amounts of information will be needed for management if there are many managed machines. Tags treated by a tag cloud are not only the tags configured by users, but also the information necessary for management involving machine status, hardware and OS information. Tag cloud classifies and displays these tags to help users find them easily.

Also, the tag cloud makes it easy to narrow down the machines with tags which are displayed.

9.6.1. Narrowing Down with Tag Cloud

To narrow down machines with a tag cloud, follow the procedures below:

1. Click **Resource** on the title bar to switch to the **Resource** view.
2. Click the icon of a machine, a rack, a resource group, or a smart group on the **System Resource** tree.
3. The **Machine Tag** box is displayed on the main window.
4. Click the tab to display on the **Machine Tag** and select the tag to display.



5. When a tag on the **Machine Tag** is clicked, managed machines that have the tag are displayed on **Machine List**.

Managed machines' information can be narrowed down more if a tag is clicked on the condition that the information has already narrowed down.

Histories of narrowing down are displayed on the right of **Tag:** as the topic path.

Note: Machines displayed on Machine List may be filtered per user due to the roll settings to resource group, and some machines are not displayed on Machine List. This sometimes may cause the issue that the number of the total tags calculated with a tag cloud does not match the number of machines displayed on Machine List.

9.6.2. Colors and Size of Characters of Tags

Colors and size of characters of tags have meaning as follows:

- Size of characters

  If the number of machines with a tag increases, the character size of the tag will be bigger.

- Colors of characters

Color of characters	Meaning	Original information of the Tag
blue	Displays information related to assets.	Type, Model, CPU type, Memory size, Disk usage, OS name
blue green	Displays location information and tag configured by users.	Location, Tag
green	Normal Status	Power status, Running status, OS Status, Hardware status
purple	Abnormal Status	Power status, Running status, OS Status, Hardware status

9.6.3. Tab

A tag cloud can display all tags and tags narrowed down.

To select a tag display, click the tab above the tag cloud. Each tab is described in the following table:

Tab name	Displayed tag	Original information of tags to be narrowed down
Status	Tags of machine status	Power status, Running status, OS Status, Hardware status
Tag	Tags configured by users	Tag
Location	Tags of location information	Location
Type	Tags of machine types	Type
Model	Tags of model	Model
CPU	Tags of CPU types	CPU type
Memory	Tags of memory size of machines.	Memory size
Disk	Tags of disk usage of machines.	System disk's used amount, Difference disk's used amount, Datastore's used amount, Extended disk's used amount
OS	Tags of machine’s OS	OS name
All Tags	All (not narrow down)	Power status, Running status, OS Status, Hardware status Tag, Location, Type, Model, CPU type, Memory size, System disk's used amount, Difference disk's used amount, Datastore's used amount, Extended disk's used amount, OS name

9.7. Checking Performance Status

This section explains how to display and check performance status of managed machines and groups.

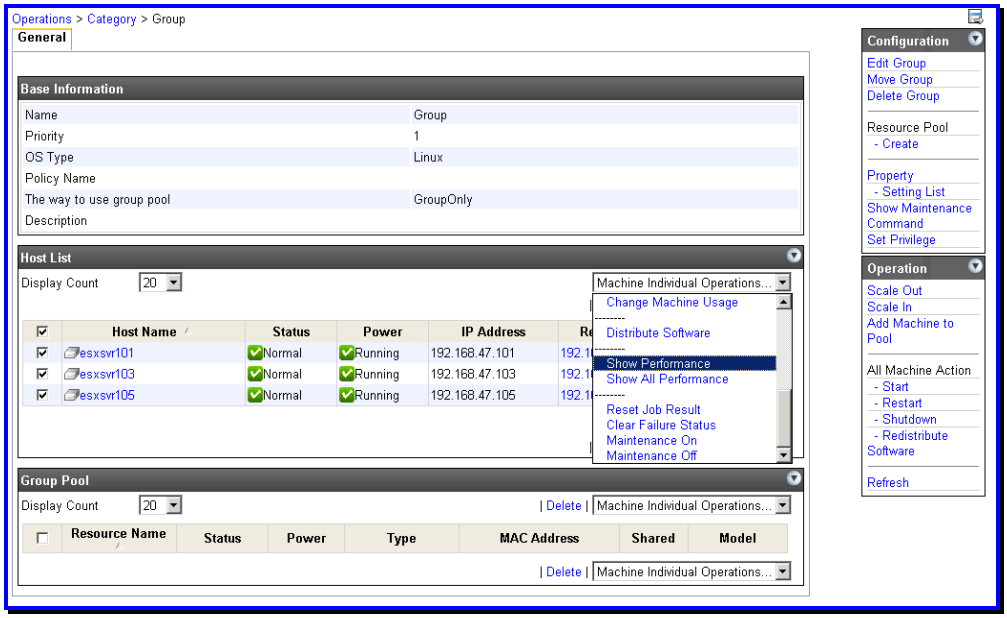
9.7.1. Comparing Managed Machines

Machines' performance status can be displayed as a graph. Multiple machines' performance status can be compared visually by the graph display.

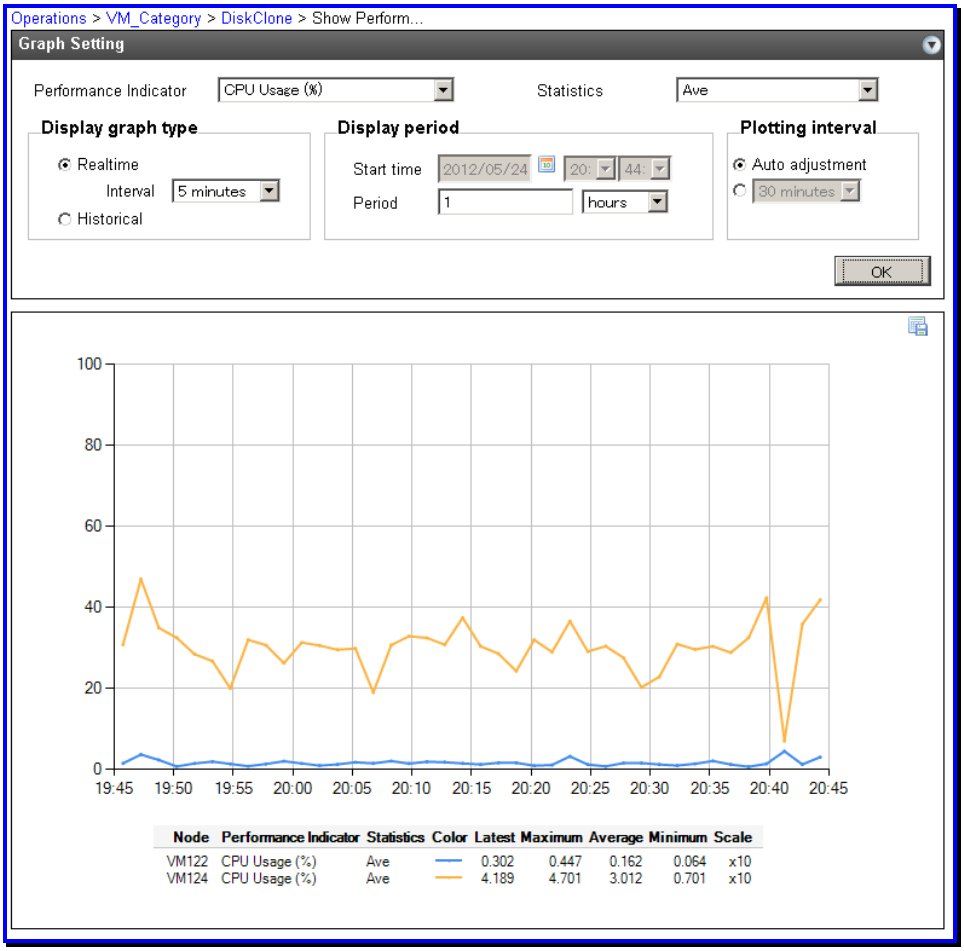
In order to display a graph, configure the monitoring setting in advance to obtain performance data with System Monitor - Performance Monitoring Services.

Reference: For configuring the monitoring setting to a group, see Subsection 5.4.14, "Configuring Settings on the Performance Monitor Tab."

1. Click the **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group on the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine to display the performance data in **Host List**. Multiple hosts can be selected.
5. Click the **Show Performance** of the Action menu.



6. **Graph Setting** appears on the Main Window.



7. Select the performance indicator for displaying graph in the **Performance Indicator** list. A performance indicator for displaying can be selected from the configured monitoring profiles' performance indicators.
8. Select the statistic calculation method from the **Statistics** list specifying one of the followings: Max, Ave, Min, or Sum.
9. Select displaying the real time graph or the history graph under **Display graph type**. When selecting the real time graph, specify the update interval of the graph.
10. Specify display period of the graph under **Display period**. If the history graph is selected under **Display graph type**, the start time for graph display can be specified.
11. Specify the plot interval under **Plotting Interval**.
12. Click **OK** to display the specified graph.

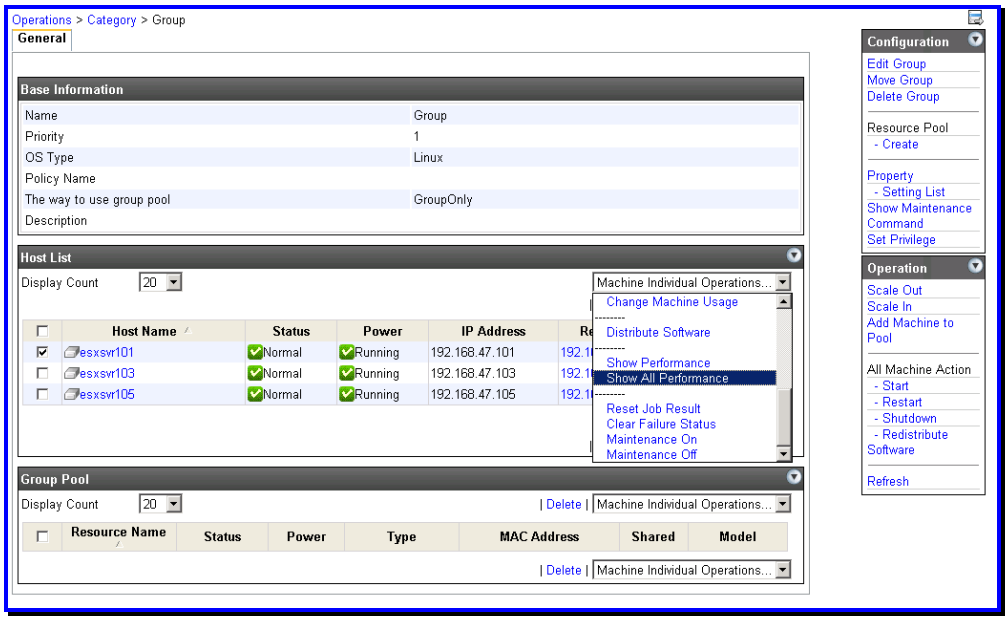
9.7.2. Comparing Performance Indicators

A specified machine's performance status can be displayed as a graph. Performance indicators about the specified machine can be shown by the graph display.

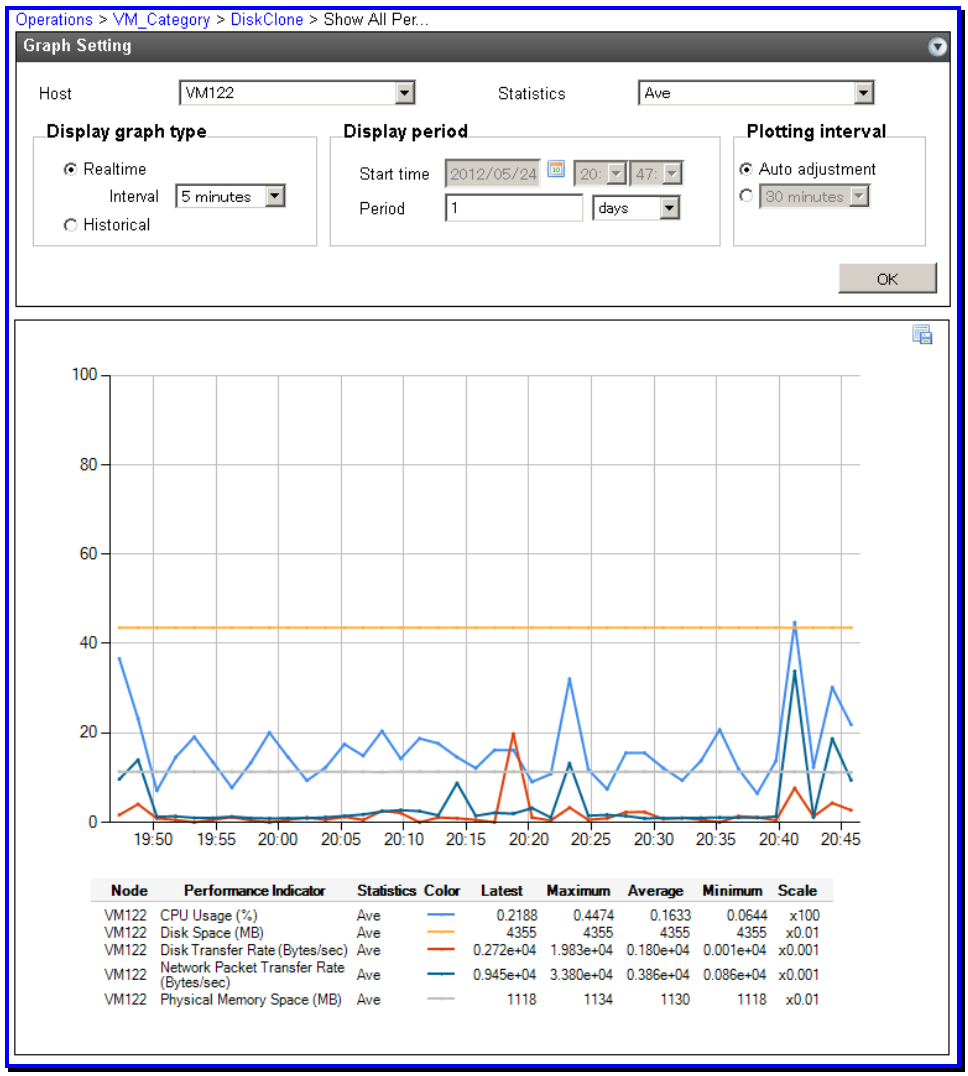
In order to display a graph, configure the monitoring setting in advance to obtain performance data with System Monitor - Performance Monitoring Services.

Reference: For configuring the monitoring setting to a group, see Subsection 5.4.14, "Configuring Settings on the Performance Monitor Tab."

1. Click the **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group on the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Select the check box of the machine to display the performance data in **Host List**. Only one host can be selected.
5. Click the **Show All Performance** of the Action menu or click the icon in **Host List**.



6. **Graph Setting** appears on the Main Window.



7. Select the target machine to be viewed its performance from the Host list. You can select machines assigned under the group from the host.
8. Select the statistic calculation method from the **Statistics** list specifying one of the followings: Max, Ave, Min, or Sum.
9. Select displaying the real time graph or the history graph under **Display graph type**. When selecting the real time graph, specify the update interval of the graph.
10. Specify display period of the graph in **Display period**. If the history graph is selected under **Display graph type**, the start time for graph display can be specified.
11. Specify the plot interval under **Plotting Interval**.
12. Click **OK** to display the specified graph.

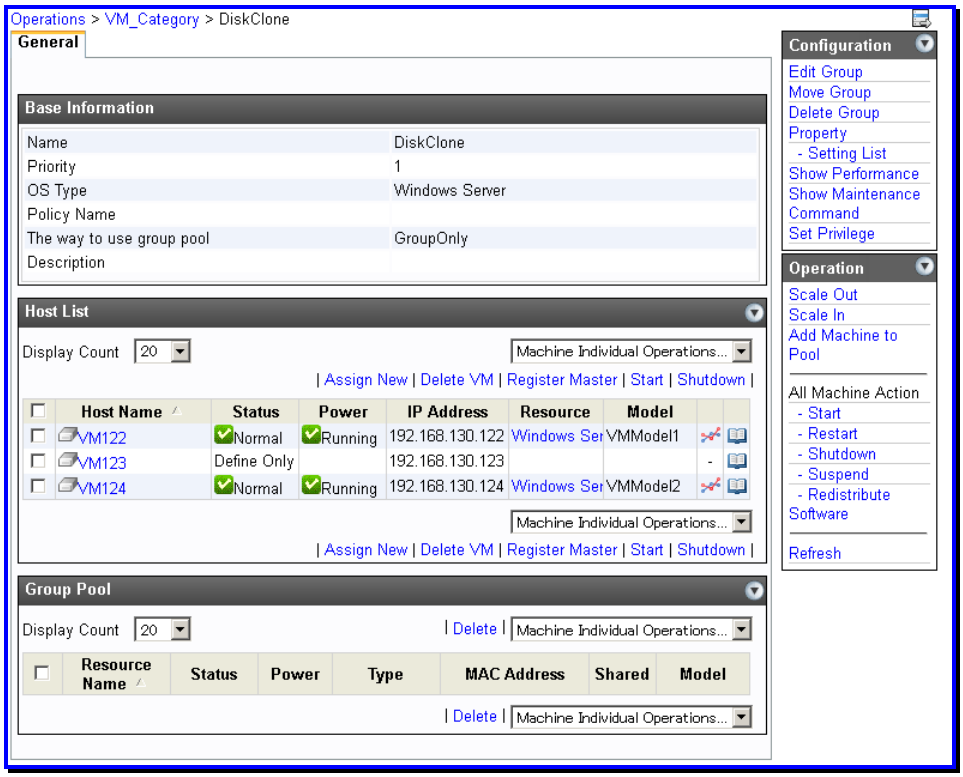
9.7.3. Comparing Groups

Models' performance status under a group can be displayed as a graph. Multiple models' performance status can be compared visually by the graph display.

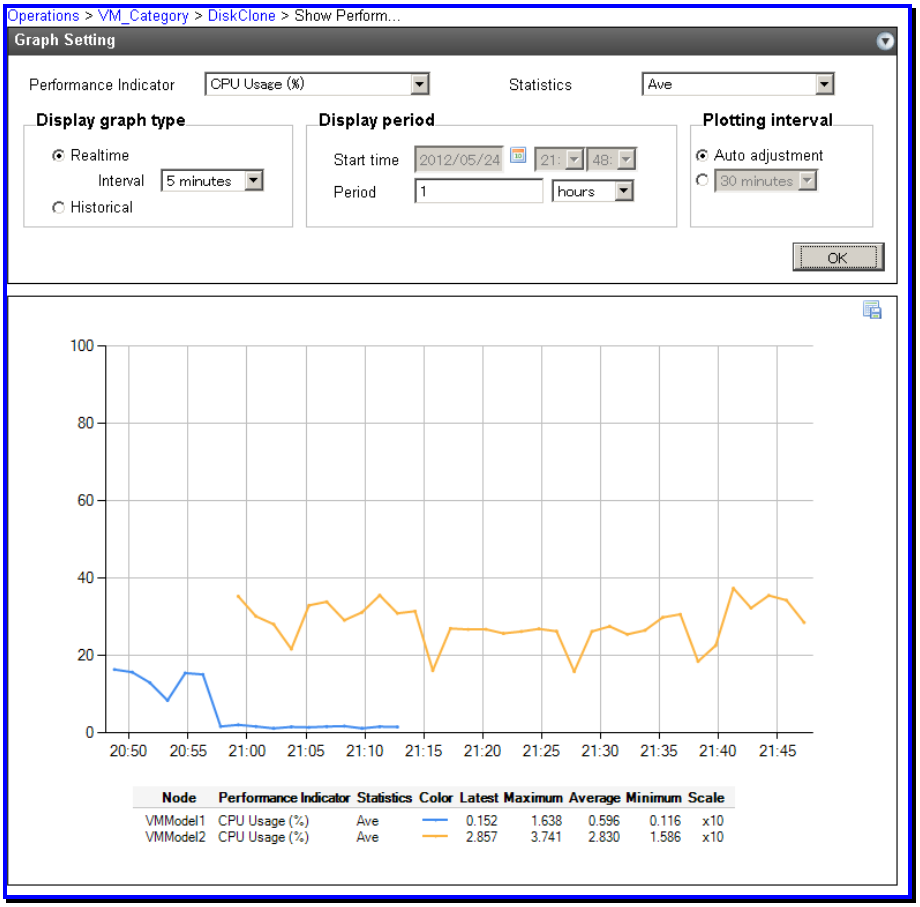
In order to display a graph, configure the monitoring setting in advance to obtain performance data with System Monitor - Performance Monitoring Services.

Reference: For configuring the monitoring setting to a group, see Subsection 5.4.14, "Configuring Settings on the Performance Monitor Tab."

1. Click the **Operations** on the Title bar to switch to the **Operations** view.
2. Click the icon of the group on the **Operations** tree.
3. Details of the group appear on the Main Window.
4. Click the **Show Performance** of the Configuration menu.



5. **Graph Setting** appears on the Main Window.



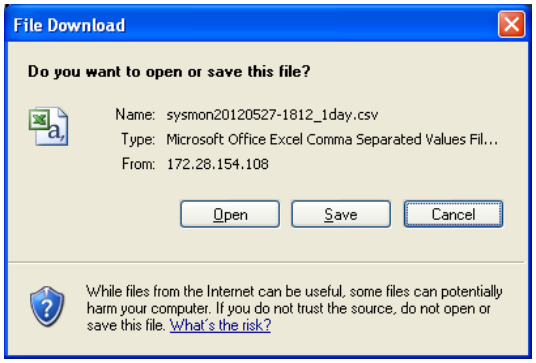
6. Select the performance indicator for displaying graph in the **Performance Indicator** list. A performance indicator for displaying can be selected from the configured monitoring profiles' performance indicators.
7. Select the statistic calculation method from the **Statistics** list specifying one of the followings: Max, Ave, Min, or Sum.
8. Select displaying the real time graph or the history graph under **Display graph type**. When selecting the real time graph, specify the update interval of the graph.
9. Specify display period of the graph under **Display period**. If the history graph is selected under **Display graph type**, the start time for graph display can be specified.
10. Specify the plot interval under **Plotting Interval**.
11. Click **OK** to display the specified graph.

9.7.4. Exporting the Performance Data to a File

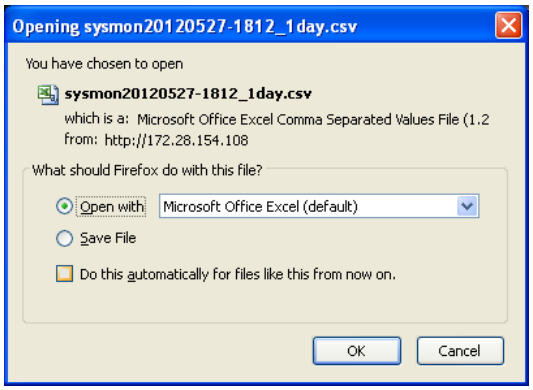
You can export the performance graph data being displayed to the CSV file. To do so, perform the following procedure:

1. Click Operations on the title bar to switch to the **Operations** view.
2. Click the icon of the group in the **Operations** tree
3. Details of the group appear on the main window.
4. Select the check box of the machine of which you want to output the CSV file of the performance graph data. You can select multiple machines.
5. Click **Show Performance** or **Show All Performance** on the Action menu, or click **Show Performance** on the Configuration menu.
6. **Graph Setting** appears on the Main Window.
7. Click in right-corner of the graph area.
8. The **File Download** dialog box appears.

- Internet Explorer


File Download
Do you want to open or save this file?
Name: sysmon20120527-1812_1day.csv
Type: Microsoft Office Excel Comma Separated Values Fil...
From: 172.28.154.108
Open
Save
Cancel
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. What's the risk?

- Firefox


Opening sysmon20120527-1812_1day.csv
You have chosen to open
sysmon20120527-1812_1day.csv
which is a: Microsoft Office Excel Comma Separated Values File (1.2
from: http://172.28.154.108
What should Firefox do with this file?
Open with
Microsoft Office Excel (default)
Save File
Do this automatically for files like this from now on.
OK
Cancel

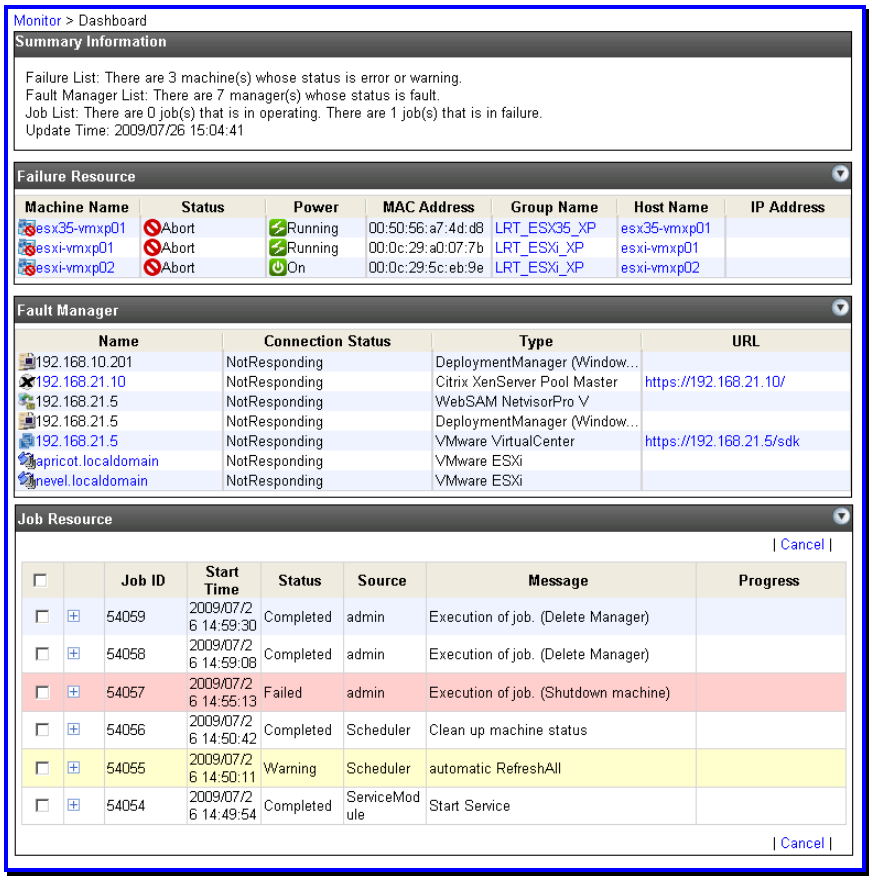
9. Click **Save** or **OK**.

9.8. Checking Failed Status

This section explains how to check failed status of a managed machine, information of Job execution or an event to trigger a policy execution.

9.8.1. Dashboard

The dashboard shows you current status, such as status of a managed resource and Job execution status.


Monitor > Dashboard
Summary Information
Failure List: There are 3 machine(s) whose status is error or warning.
Fault Manager List: There are 7 manager(s) whose status is fault.
Job List: There are 0 job(s) that is in operating. There are 1 job(s) that is in failure.
Update Time: 2009/07/26 15:04:41
Failure Resource
Machine Name Status Power MAC Address Group Name Host Name IP Address
esx35-vmxp01 Abort Running 00:50:56:a7:4d:d8 LRT_ESX35_XP esx35-vmxp01
esxi-vmxp01 Abort Running 00:0c:29:a0:07:7b LRT_ESXi_XP esxi-vmxp01
esxi-vmxp02 Abort On 00:0c:29:5c:eb:9e LRT_ESXi_XP esxi-vmxp02
Fault Manager
Name Connection Status Type URL
192.168.10.201 NotResponding DeploymentManager (Window...
192.168.21.10 NotResponding Citrix XenServer Pool Master https://192.168.21.10/
192.168.21.5 NotResponding WebSAM NetvisorPro V
192.168.21.5 NotResponding DeploymentManager (Window...
192.168.21.5 NotResponding VMware VirtualCenter https://192.168.21.5/sdk
apricot.localdomain NotResponding VMware ESXi
nevel.localdomain NotResponding VMware ESXi
Job Resource
| Cancel |
Job ID Start Time Status Source Message Progress
54059 2009/07/26 14:59:30 Completed admin Execution of job. (Delete Manager)
54058 2009/07/26 14:59:08 Completed admin Execution of job. (Delete Manager)
54057 2009/07/26 14:55:13 Failed admin Execution of job. (Shutdown machine)
54056 2009/07/26 14:50:42 Completed Scheduler Clean up machine status
54055 2009/07/26 14:50:11 Warning Scheduler automatic RefreshAll
54054 2009/07/26 14:49:54 Completed ServiceModule Start Service
| Cancel |

- Failure Resource

  A list of failed managed machines is displayed. Not only running machines in an operation group, but also unmanaged machines are displayed. If you click a Machine Name, the view switches to the Resource view, which you can check detailed information of the target machine. If you click a group or host, the view switches to the Operations view, which you can check status of the operation group or host.

- Fault Manager

  A list of subsystems in unconnectable status is displayed.

- Job Resource

  Jobs running and completed in the period specified in the Job result display period box on the Display tab of Environment Setting. You can cancel a running Job from here. An abnormal ended Job is displayed in pink and warned job is displayed in yellow.

  You can refer to the action status by clicking the icon. To refer to a Job that is completed and that the Job result display period specified on the Display tab of Environment Setting has passed, check the Job window.

9.8.2. Event Viewer

You can check Event Logs on Event Viewer. SystemProvisioning records logs with the source names, "PVM" and "SystemMonitorEvent."

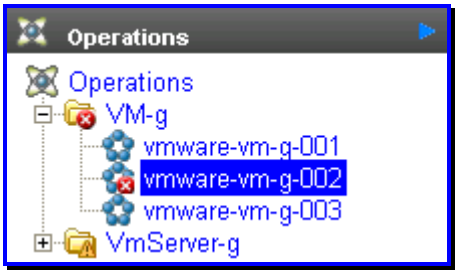
For a list of event logs, see Section 2.2, "Event Logs" in *SigmaSystemCenter Data Reference Guide*.

System Monitor - Performance Monitoring Services records errors and event information during operation on the event log on a management server with the source name, "System Monitor - Performance Monitoring Services" and records error information on Application Log or System Log. For event logs of System Monitor - Performance Monitoring Services, see Section 9.1, "The Event Log" in *System Monitor - Performance Monitoring Services User's Guide*.

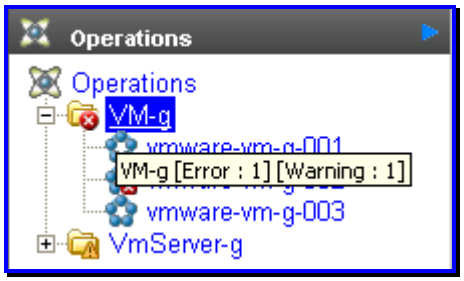
9.8.3. Checking Failed Status of a Managed Machine

You can check failed status of a management machine on the Dashboard window and in the views of SigmaSystemCenter: Operations view, Resource view, and Virtual view.

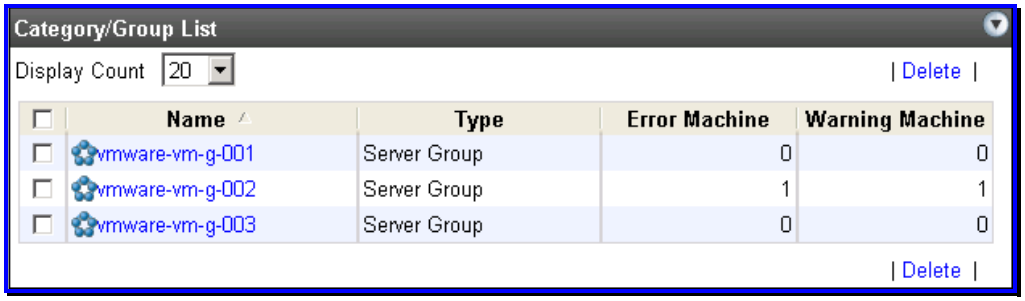
If a managed machine is in failed status, a failed mark appears on an icon of a machine displayed in the tree view. This mark appears also on a group or a category that the failed machine belongs so you can check the existence of a failed machine from the upper group level.



You can check the sum of failed machines that belong to an operation group, category, and virtual machine server if a failed machine is a virtual machine from the tool tip of icons of an operation group, category, and virtual machine server.



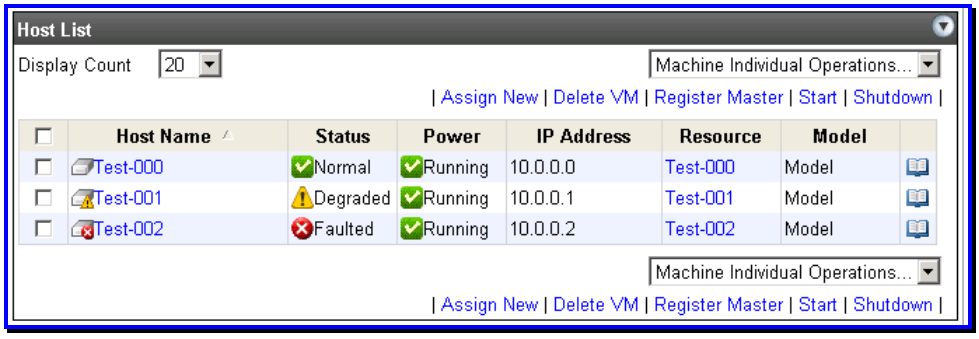
If you click an icon of a category in the tree view, a list of categories or groups is displayed and from there, you can check its summary information.



Note: Summary information of a failed machine displayed under Category / Group List in the Operations view does not include failure information of machines that belong to the group pool.

If you click an icon of a group in the tree view, details of the group is displayed and from there, you can check information of machines that belong to the group. If you click Status to sort information, a failed machine is displayed at the top of the list.

Check a cause of failure with the following procedure according to the status of a failed machine.


Host List
Display Count 20
Machine Individual Operations...
| Assign New | Delete VM | Register Master | Start | Shutdown |
Host Name
Status
Power
IP Address
Resource
Model
Test-000 Normal Running 10.0.0.0 Test-000 Model
Test-001 Degraded Running 10.0.0.1 Test-001 Model
Test-002 Faulted Running 10.0.0.2 Test-002 Model
Machine Individual Operations...
| Assign New | Delete VM | Register Master | Start | Shutdown |

- Abort

  An action by a policy or operation from the Web Console, such as starting, stopping, changing configuration of a machine, is aborted. Check a failed Job on the Job window.

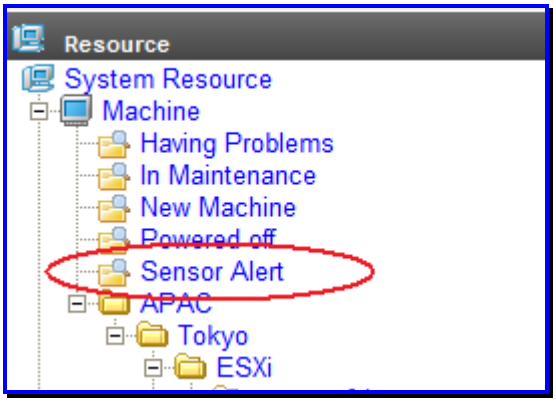
  You can change the status of the target machine from Abort to Normal by executing Reset Job Result.

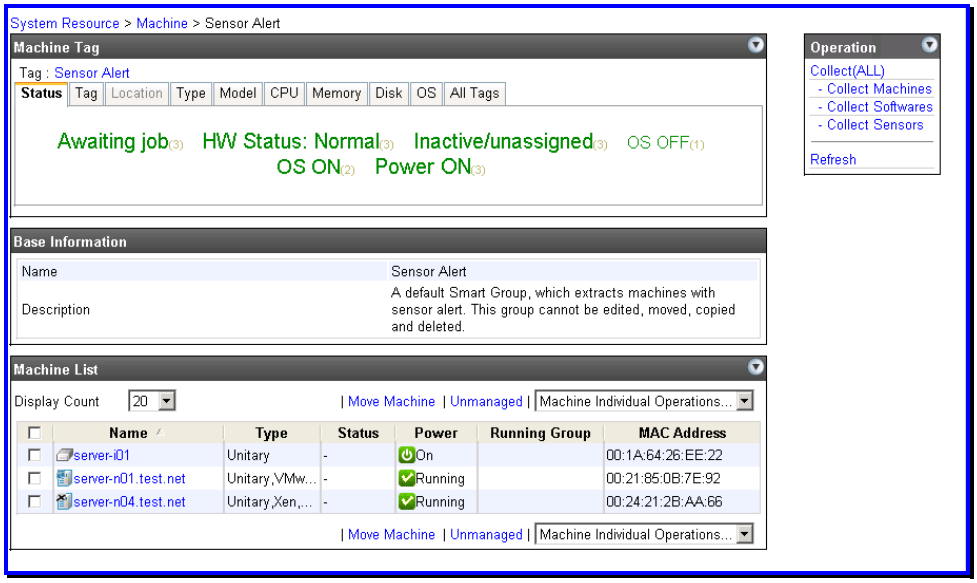
- Faulted and Degraded

  If a failure event of a monitored machine is alerted from the alive monitoring feature such as Ping monitoring or Port monitoring, NEC ESMPRO Manager, or VMware vCenter Server, SystemProvisioning changes status of the machine to Faulted or Degraded. Check a failed event that caused Faulted or Degraded status on the Operations Log window.

9.8.4. Checking Sensor Status on a Managed Machine

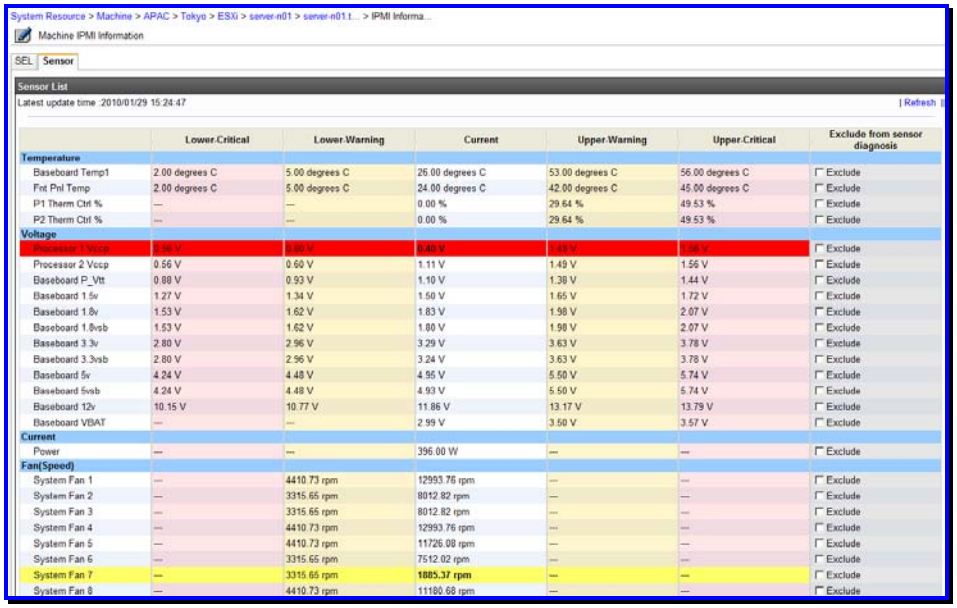
If a sensor on a managed machine has a problem, it is classified into a default smart group, Sensor Alert under the tree on the Resource view.




System Resource > Machine > Sensor Alert
Machine Tag
Tag : Sensor Alert
Status Tag Location Type Model CPU Memory Disk OS All Tags
Awaiting job(3) HW Status: Normal(3) Inactive/unassigned(3) OS OFF(1)
OS ON(2) Power ON(3)
Operation
Collect(ALL)
- Collect Machines
- Collect Softwares
- Collect Sensors
Refresh
Base Information
Name Sensor Alert
Description A default Smart Group, which extracts machines with sensor alert. This group cannot be edited, moved, copied and deleted.
Machine List
Display Count 20
| Move Machine | Unmanaged | Machine Individual Operations...
Name Type Status Power Running Group MAC Address
server-i01 Unitary - On 00:1A:64:26:EE:22
server-n01.test.net Unitary,VMw... - Running 00:21:85:0B:7E:92
server-n04.test.net Unitary,Xen,... - Running 00:24:21:2B:AA:66
| Move Machine | Unmanaged | Machine Individual Operations...

When checking details of a sensor status of a machine, click IPMI Information on Configuration menu on the detail information of the machine. IPMI information appears on the Main Window. Select the Sensor tab.

A sensor that has a problem is displayed in a yellow line which means warning or a red line which means critical. Depending on the status of the problem, contact your system administrator.


Machine IPMI Information
SEL Sensor
Sensor List
Latest update time :2010/01/29 15:24:47
Refresh
Lower.Critical Lower.Warning Current Upper.Warning Upper.Critical Exclude from sensor diagnosis
Temperature
Baseboard Temp1 2.00 degrees C 5.00 degrees C 26.00 degrees C 53.00 degrees C 56.00 degrees C Exclude
Frt Pnl Temp 2.00 degrees C 5.00 degrees C 24.00 degrees C 42.00 degrees C 45.00 degrees C Exclude
P1 Therm Ctrl % --- --- 0.00 % 29.64 % 49.53 % Exclude
P2 Therm Ctrl % --- --- 0.00 % 29.64 % 49.53 % Exclude
Voltage
Processor 1 Vccp 0.56 V 0.60 V 0.40 V 1.49 V 1.56 V Exclude
Processor 2 Vccp 0.56 V 0.60 V 1.11 V 1.49 V 1.56 V Exclude
Baseboard P_Vtt 0.88 V 0.93 V 1.10 V 1.38 V 1.44 V Exclude
Baseboard 1.5v 1.27 V 1.34 V 1.50 V 1.65 V 1.72 V Exclude
Baseboard 1.8v 1.53 V 1.62 V 1.83 V 1.98 V 2.07 V Exclude
Baseboard 1.8vsb 1.53 V 1.62 V 1.80 V 1.98 V 2.07 V Exclude
Baseboard 3.3v 2.80 V 2.96 V 3.29 V 3.63 V 3.78 V Exclude
Baseboard 3.3vsb 2.80 V 2.96 V 3.24 V 3.63 V 3.78 V Exclude
Baseboard 5v 4.24 V 4.48 V 4.95 V 5.50 V 5.74 V Exclude
Baseboard 5vsb 4.24 V 4.48 V 4.93 V 5.50 V 5.74 V Exclude
Baseboard 12v 10.15 V 10.77 V 11.86 V 13.17 V 13.79 V Exclude
Baseboard VBAT --- --- 2.99 V 3.50 V 3.57 V Exclude
Current
Power --- --- 396.00 W --- --- Exclude
Fan(Speed)
System Fan 1 --- 4410.73 rpm 12993.76 rpm --- --- Exclude
System Fan 2 --- 3315.65 rpm 8012.82 rpm --- --- Exclude
System Fan 3 --- 3315.65 rpm 8012.82 rpm --- --- Exclude
System Fan 4 --- 4410.73 rpm 12993.76 rpm --- --- Exclude
System Fan 5 --- 4410.73 rpm 11726.08 rpm --- --- Exclude
System Fan 6 --- 3315.65 rpm 7512.02 rpm --- --- Exclude
System Fan 7 --- 3315.65 rpm 1885.37 rpm --- --- Exclude
System Fan 8 --- 4410.73 rpm 11180.68 rpm --- --- Exclude

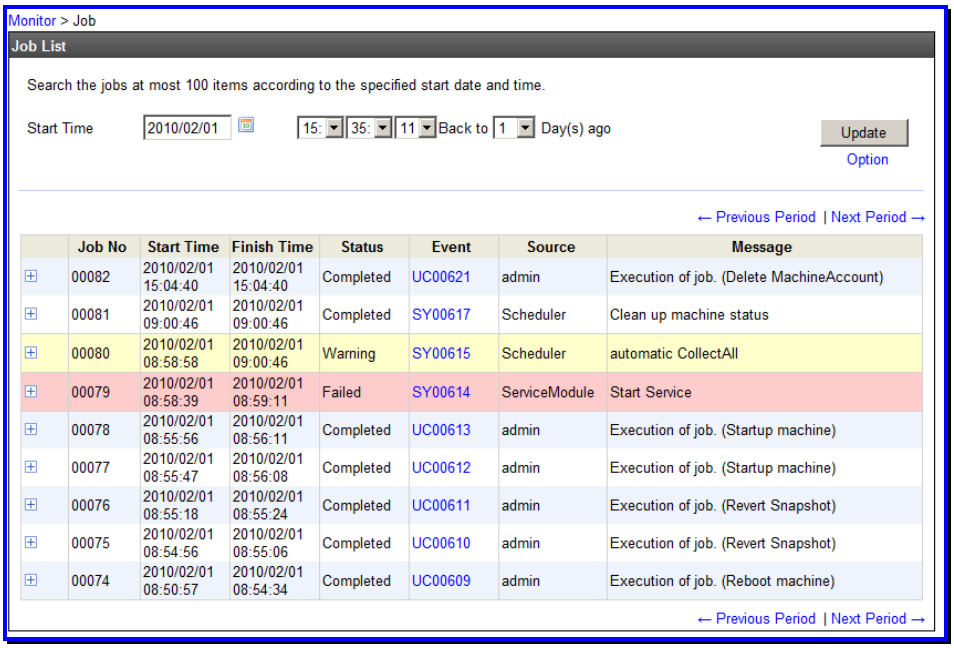
Note: As far as the machine where the policy action, Set faulted status by sensor diagnosis, is applied and enabled, its sensor information will be dynamically updated if an action is executed.

The latest sensor information will be displayed as well by clicking the Refresh on the Sensor tab.

9.8.5. Checking Job Execution Status

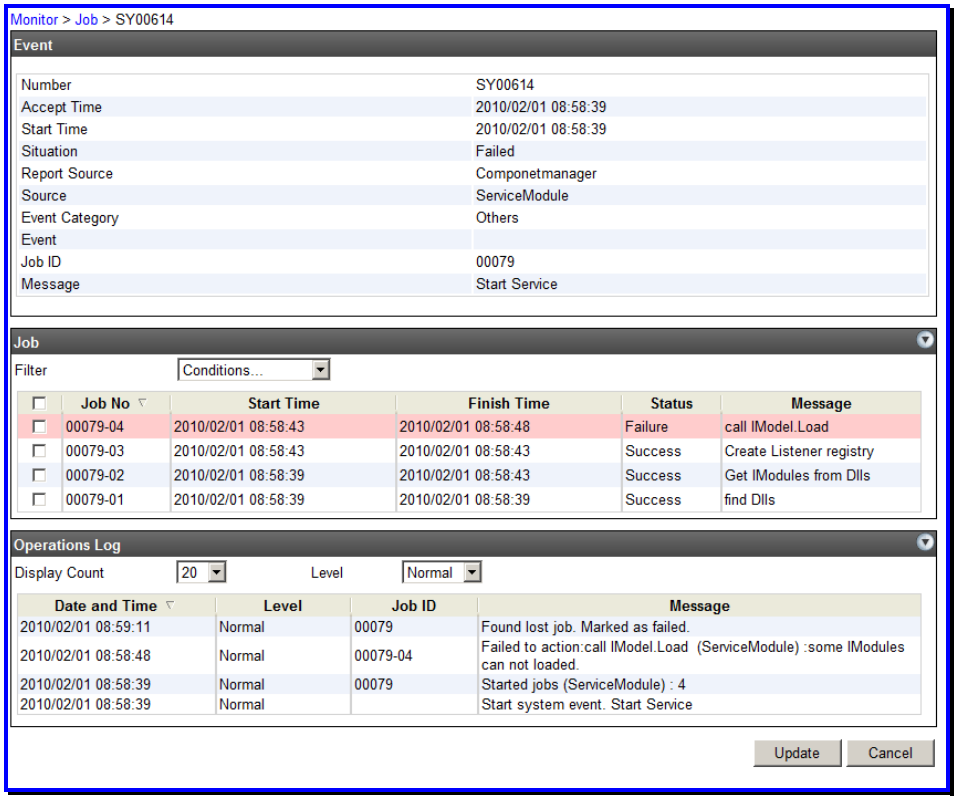
You can check Job execution status on the Dashboard window or Job window.

An aborted Job is displayed in pink and warned Job is displayed in yellow.


Monitor > Job
Job List
Search the jobs at most 100 items according to the specified start date and time.
Start Time
2010/02/01
15:
35:
11
Back to
1
Day(s) ago
Update
Option
← Previous Period | Next Period →
Job No
Start Time
Finish Time
Status
Event
Source
Message
00082 2010/02/01 15:04:40 2010/02/01 15:04:40 Completed UC00621 admin Execution of job. (Delete MachineAccount)
00081 2010/02/01 09:00:46 2010/02/01 09:00:46 Completed SY00617 Scheduler Clean up machine status
00080 2010/02/01 08:58:58 2010/02/01 09:00:46 Warning SY00615 Scheduler automatic CollectAll
00079 2010/02/01 08:58:39 2010/02/01 08:59:11 Failed SY00614 ServiceModule Start Service
00078 2010/02/01 08:55:56 2010/02/01 08:56:11 Completed UC00613 admin Execution of job. (Startup machine)
00077 2010/02/01 08:55:47 2010/02/01 08:56:08 Completed UC00612 admin Execution of job. (Startup machine)
00076 2010/02/01 08:55:18 2010/02/01 08:55:24 Completed UC00611 admin Execution of job. (Revert Snapshot)
00075 2010/02/01 08:54:56 2010/02/01 08:55:06 Completed UC00610 admin Execution of job. (Revert Snapshot)
00074 2010/02/01 08:50:57 2010/02/01 08:54:34 Completed UC00609 admin Execution of job. (Reboot machine)
← Previous Period | Next Period →

To check more detailed information, click the icon.

When the event number of the job on the **Event** column is clicked, a list of information of events, jobs and operations logs which are connected to the job is displayed.


Monitor > Job > SY00614
Event
Number SY00614
Accept Time 2010/02/01 08:58:39
Start Time 2010/02/01 08:58:39
Situation Failed
Report Source Componetmanager
Source ServiceModule
Event Category Others
Event
Job ID 00079
Message Start Service
Job
Filter Conditions...
Job No | Start Time | Finish Time | Status | Message
00079-04 | 2010/02/01 08:58:43 | 2010/02/01 08:58:48 | Failure | call IModel.Load
00079-03 | 2010/02/01 08:58:43 | 2010/02/01 08:58:43 | Success | Create Listener registry
00079-02 | 2010/02/01 08:58:39 | 2010/02/01 08:58:43 | Success | Get IModules from Dlls
00079-01 | 2010/02/01 08:58:39 | 2010/02/01 08:58:39 | Success | find Dlls
Operations Log
Display Count 20 Level Normal
Date and Time | Level | Job ID | Message
2010/02/01 08:59:11 | Normal | 00079 | Found lost job. Marked as failed.
2010/02/01 08:58:48 | Normal | 00079-04 | Failed to action:call IModel.Load (ServiceModule) :some IModules can not loaded.
2010/02/01 08:58:39 | Normal | 00079 | Started jobs (ServiceModule) : 4
2010/02/01 08:58:39 | Normal | | Start system event. Start Service
Update
Cancel

Logs displayed under **Operations Log** are related to jobs displayed under **Job.**

If jobs displayed under **Job** are narrowed down, logs displayed under **Operations Log** are also narrowed down to those of having relation to the jobs. Select the check boxes of the target jobs and select **The selected jobs** from the **Filter** list.

To display more detailed operation log, select **Detail** or **Trace** in the **Level** list under **Operations Log**.

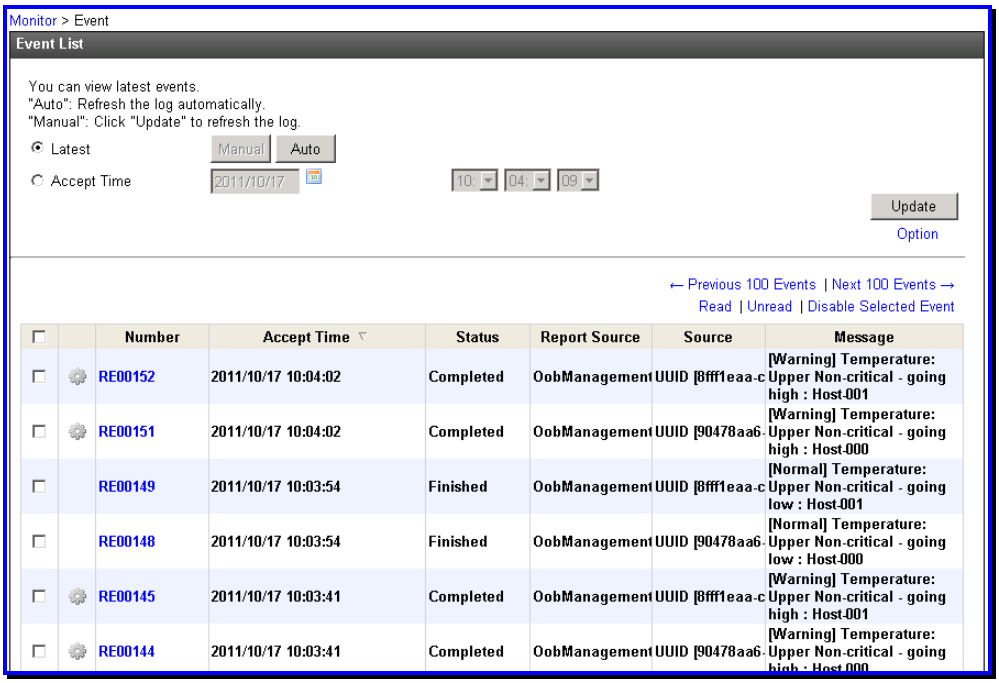
9.8.6. Checking Events

A list of events which are received from related products and to be the targets of policy can be confirmed on the Event List window.

The status of the job that has been executed triggered by an event can also be confirmed on the Event List window. The mark is displayed before the Number column of such jobs.

An event will be displayed in pink if its job is aborted or in yellow if its job has resulted in state of attention.

Click a link on the Number column to display an event's detailed information, which includes the jobs that have been executed triggered by the event and the operations log that has been recorded in the event and job.

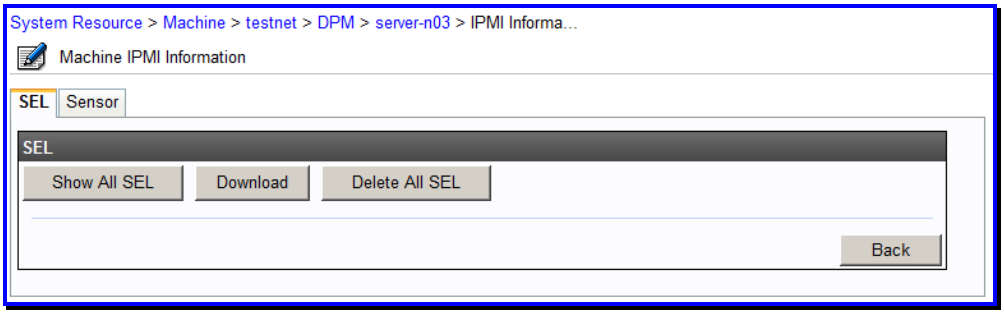

Monitor > Event
Event List
You can view latest events.
"Auto": Refresh the log automatically.
"Manual": Click "Update" to refresh the log.
Latest
Manual
Auto
Accept Time
2011/10/17
10:
04:
09
Update
Option
← Previous 100 Events | Next 100 Events →
Read | Unread | Disable Selected Event
Number
Accept Time
Status
Report Source
Source
Message
RE00152 2011/10/17 10:04:02 Completed OobManagement UUID [8fff1eaa-c [Warning] Temperature: Upper Non-critical - going high : Host-001
RE00151 2011/10/17 10:04:02 Completed OobManagement UUID [90478aa6- [Warning] Temperature: Upper Non-critical - going high : Host-000
RE00149 2011/10/17 10:03:54 Finished OobManagement UUID [8fff1eaa-c [Normal] Temperature: Upper Non-critical - going low : Host-001
RE00148 2011/10/17 10:03:54 Finished OobManagement UUID [90478aa6- [Normal] Temperature: Upper Non-critical - going low : Host-000
RE00145 2011/10/17 10:03:41 Completed OobManagement UUID [8fff1eaa-c [Warning] Temperature: Upper Non-critical - going high : Host-001
RE00144 2011/10/17 10:03:41 Completed OobManagement UUID [90478aa6- [Warning] Temperature: Upper Non-critical - going

9.9. Viewing IPMI Information

This section explains how to view the IPMI information from managed machines.

Note: To obtain the IPMI Information, configure the system environment so that "Connected" will be displayed in the **Connection Status** of the Out-of-Band Management connection information of the selected machine's detailed information.

1. Click **Resource** on the title bar to switch to the **Resource** view.
2. Click the icon of a machine on the **System Resource** tree.
3. The detailed information of the machine, which is to be the target of obtaining the IPMI information, is displayed.
4. Click the **IPMI Information** on the Configuration menu to display the **Machine IPMI Information** window on the Main Window. However, if the machine type is a virtual machine, the **IPMI Information** is not displayed on the Configuration menu.

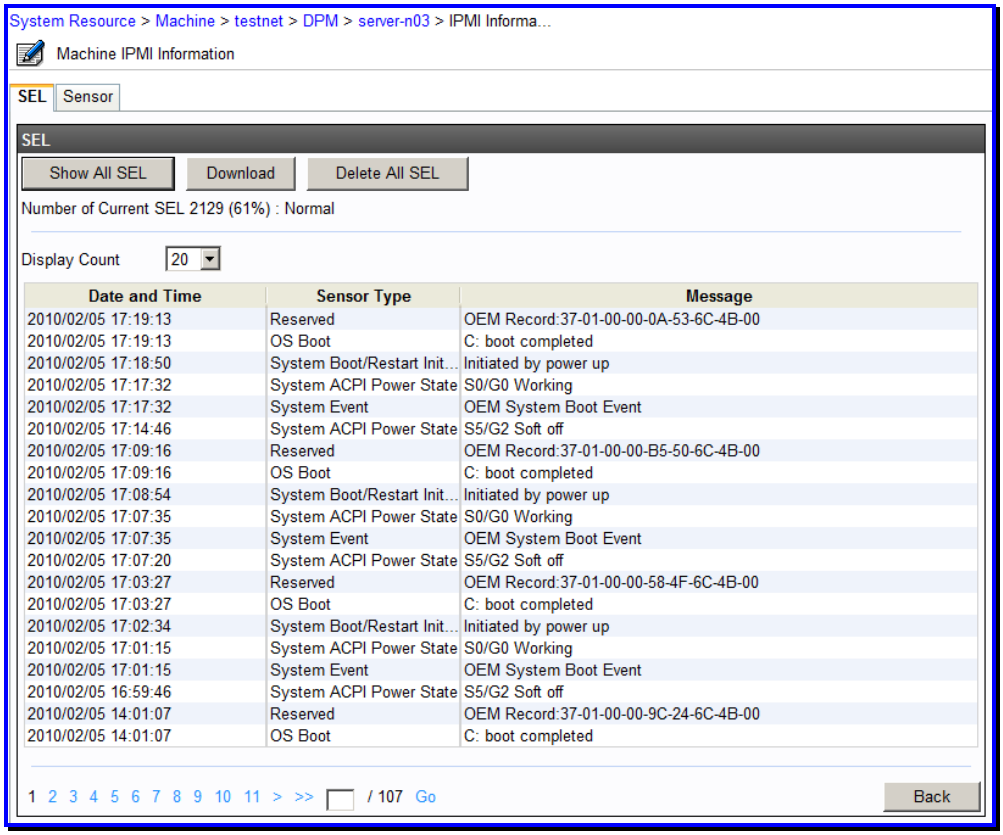


9.9.1. SEL Tab

The SEL tab displays System Event Logs (SEL) those are recorded in managed machines. You can download and operate SELs from this tab.

◆ Show All SEL

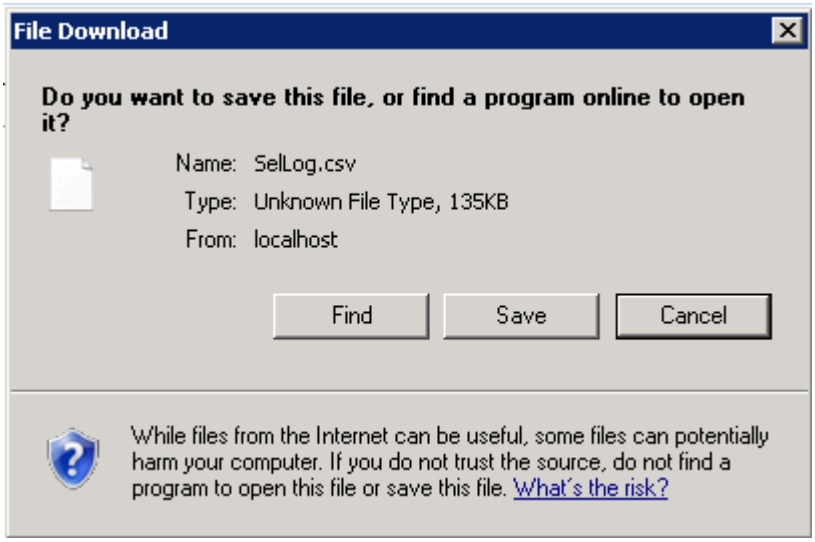
All SELs recorded in managed machines are obtained and displayed on the SEL tab. If you click the **Show All SEL**, all SELs are displayed in a list as below.


System Resource > Machine > testnet > DPM > server-n03 > IPMI Informa...
Machine IPMI Information
SEL
Sensor
SEL
Show All SEL
Download
Delete All SEL
Number of Current SEL 2129 (61%) : Normal
Display Count
20
Date and Time
Sensor Type
Message
2010/02/05 17:19:13 Reserved OEM Record:37-01-00-00-0A-53-6C-4B-00
2010/02/05 17:19:13 OS Boot C: boot completed
2010/02/05 17:18:50 System Boot/Restart Init... Initiated by power up
2010/02/05 17:17:32 System ACPI Power State S0/G0 Working
2010/02/05 17:17:32 System Event OEM System Boot Event
2010/02/05 17:14:46 System ACPI Power State S5/G2 Soft off
2010/02/05 17:09:16 Reserved OEM Record:37-01-00-00-B5-50-6C-4B-00
2010/02/05 17:09:16 OS Boot C: boot completed
2010/02/05 17:08:54 System Boot/Restart Init... Initiated by power up
2010/02/05 17:07:35 System ACPI Power State S0/G0 Working
2010/02/05 17:07:35 System Event OEM System Boot Event
2010/02/05 17:07:20 System ACPI Power State S5/G2 Soft off
2010/02/05 17:03:27 Reserved OEM Record:37-01-00-00-58-4F-6C-4B-00
2010/02/05 17:03:27 OS Boot C: boot completed
2010/02/05 17:02:34 System Boot/Restart Init... Initiated by power up
2010/02/05 17:01:15 System ACPI Power State S0/G0 Working
2010/02/05 17:01:15 System Event OEM System Boot Event
2010/02/05 16:59:46 System ACPI Power State S5/G2 Soft off
2010/02/05 14:01:07 Reserved OEM Record:37-01-00-00-9C-24-6C-4B-00
2010/02/05 14:01:07 OS Boot C: boot completed
1 2 3 4 5 6 7 8 9 10 11 > >> / 107 Go
Back

- Download

  All SELs are obtained from managed machines to be downloaded as CSV files.

  If you click **Download**, the window as below appears. The CSV files can be opened or saved from the window.


File Download
Do you want to save this file, or find a program online to open it?
Name: SelLog.csv
Type: Unknown File Type, 135KB
From: localhost
Find
Save
Cancel
While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not find a program to open this file or save this file. What's the risk?

- Delete All SEL

  If you click the **Delete All SEL**, all SELs that are recorded in managed machines will be deleted.

  Be aware that once SELs are deleted, they cannot be reverted.

Note: Results of the executed **Delete All SEL** can be viewed on the **Job** on the **Monitor** tree.

9.9.2. Sensor Tab

The Sensor tab displays information of hardware sensors that are implemented by managed machines.

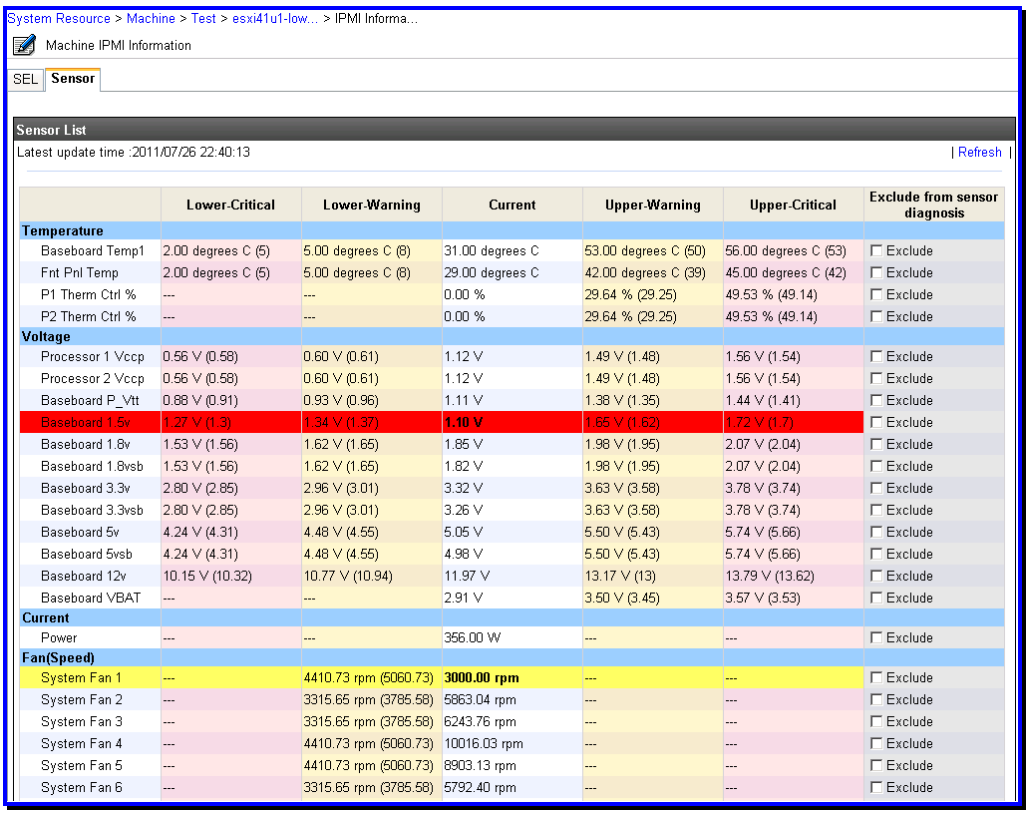
You can check the values obtained from the sensors and the sensors' status in the **Sensor List**. Sensors can be configured as targets of sensor diagnosis respectively.

The sensor diagnosis is a functionality that examines whether machines are at risk or not based on the values obtained from the sensors.

Lines of the sensors that are critical are displayed in red and those of the sensors that are in warning condition are displayed in yellow in the **Sensor List** as the window below.

Machines with the sensors of which lines are displayed in red or yellow are displayed in the machine list when you select the Sensor Alert smart group on the **System Resource** tree.

The "**Machine status** / **Set faulted status by an analysis of HW sensor conditions**" of policy actions executes the sensor diagnosis and decides whether sets the faulted status on the sensor or not according to the sensor diagnosis's result.



	Lower-Critical	Lower-Warning	Current	Upper-Warning	Upper-Critical	Exclude from sensor diagnosis
Temperature						
Baseboard Temp1	2.00 degrees C (5)	5.00 degrees C (8)	31.00 degrees C	53.00 degrees C (50)	56.00 degrees C (53)	☐ Exclude
Fnt Pnl Temp	2.00 degrees C (5)	5.00 degrees C (8)	29.00 degrees C	42.00 degrees C (39)	45.00 degrees C (42)	☐ Exclude
P1 Therm Ctrl %	---	---	0.00 %	29.64 % (29.25)	49.53 % (49.14)	☐ Exclude
P2 Therm Ctrl %	---	---	0.00 %	29.64 % (29.25)	49.53 % (49.14)	☐ Exclude
Voltage						
Processor 1 Vccp	0.56 V (0.58)	0.60 V (0.61)	1.12 V	1.49 V (1.48)	1.56 V (1.54)	☐ Exclude
Processor 2 Vccp	0.56 V (0.58)	0.60 V (0.61)	1.12 V	1.49 V (1.48)	1.56 V (1.54)	☐ Exclude
Baseboard P_Vtt	0.88 V (0.91)	0.93 V (0.96)	1.11 V	1.38 V (1.35)	1.44 V (1.41)	☐ Exclude
Baseboard 1.5v	1.27 V (1.3)	1.34 V (1.37)	**1.10 V**	1.65 V (1.62)	1.72 V (1.7)	☐ Exclude
Baseboard 1.8v	1.53 V (1.56)	1.62 V (1.65)	1.85 V	1.98 V (1.95)	2.07 V (2.04)	☐ Exclude
Baseboard 1.8vsb	1.53 V (1.56)	1.62 V (1.65)	1.82 V	1.98 V (1.95)	2.07 V (2.04)	☐ Exclude
Baseboard 3.3v	2.80 V (2.85)	2.96 V (3.01)	3.32 V	3.63 V (3.58)	3.78 V (3.74)	☐ Exclude
Baseboard 3.3vsb	2.80 V (2.85)	2.96 V (3.01)	3.26 V	3.63 V (3.58)	3.78 V (3.74)	☐ Exclude
Baseboard 5v	4.24 V (4.31)	4.48 V (4.55)	5.05 V	5.50 V (5.43)	5.74 V (5.66)	☐ Exclude
Baseboard 5vsb	4.24 V (4.31)	4.48 V (4.55)	4.98 V	5.50 V (5.43)	5.74 V (5.66)	☐ Exclude
Baseboard 12v	10.15 V (10.32)	10.77 V (10.94)	11.97 V	13.17 V (13)	13.79 V (13.62)	☐ Exclude
Baseboard VBAT	---	---	2.91 V	3.50 V (3.45)	3.57 V (3.53)	☐ Exclude
Current						
Power	---	---	356.00 W	---	---	☐ Exclude
Fan(Speed)						
System Fan 1	---	4410.73 rpm (5060.73)	**3000.00 rpm**	---	---	☐ Exclude
System Fan 2	---	3315.65 rpm (3785.58)	5863.04 rpm	---	---	☐ Exclude
System Fan 3	---	3315.65 rpm (3785.58)	6243.76 rpm	---	---	☐ Exclude
System Fan 4	---	4410.73 rpm (5060.73)	10016.03 rpm	---	---	☐ Exclude
System Fan 5	---	4410.73 rpm (5060.73)	8903.13 rpm	---	---	☐ Exclude
System Fan 6	---	3315.65 rpm (3785.58)	5792.40 rpm	---	---	☐ Exclude

9.10. Replacing Hardware

Be sure to set the machine in Maintenance mode when starting or suspending a machine. If you start or suspend a machine without setting in Maintenance mode, the system recognizes the situation as a failure and may try to restore according to policies.

9.10.1. Replacing a Machine or a Motherboard

To replace a machine or a motherboard, follow the procedure below.

SystemProvisioning manages machines with the UUID or MAC address on the NIC of the machine. So, if the machine's UUID and MAC address are changed by replacing a machine or a motherboard, you need to register the machine newly with its new UUID and MAC address.

In this procedure, the following cases are assumed:

- Replace the managed machine itself because of its failure. The following procedure is also applied to when you replace the NIC and HBA mounted on the managed machine along with machine replacement.
- Replace the motherboard because of the failure of the managed machine's motherboard. The following procedure is also applied to when you replace the NIC and HBA mounted on the managed machine along with motherboard replacement.

The machine does not need to enter the maintenance mode to perform the procedure.

1. Preparation

   If the OS or application must be set up because of the disk corruption, check and prepare the backup data and installation media.
2. Deleting the machine from the operation group
   1. Required tasks before replacing a machine

      If you want to replace the running virtual machine server, perform the following tasks:

      - Evacuate virtual machines those work on the virtual machine server., Select the virtual machines which work on the virtual machine server on the **Operations** view, and then perform **Move Virtual Machine** to move them to another virtual machine server.

        Or perform **Release Resource** without taking apart them.
      - In the Hyper-V cluster, evict the machine from the cluster.

        Evict the node of the machine from the cluster using Hyper-V's Failover Cluster Manager.

        After evicting it, select **System Resource** on the SigmaSystemCenter Web console to perform **Collect**.

- In XenServer, remove the machine from the XenCenter's pool.

  After removing it, select **System Resource** on the SigmaSystemCenter Web console to perform **Collect**.

2. Remove the machine from the group
   - If the machine is added to the group pool, remove it from the group pool.

     If the target machine has been separated from the running machine by operations such as N+1 recovery and exists in the group pool as the failure machine, select the machine from the group pool on the Operations view and click **Remove Machine from Pool**.
   - If the machine is running, perform **Release Resource** with taking apart it.

     On the **Operations** view, perform **Release Resource** and select the **Release machine with taking apart it** option for the target group. Select **Shared Pool** as Return pool to prevent the machine from being in the group pool of the group.
3. Ensure to shut down the machine

   If the target machine is not shut down automatically in the procedure 2 and it is still working, power off the machine through the BMC console or manually.

3. Removing the target machine's registration
   1. Make the machine to be replaced on SigmaSystemCenter unmanaged.

      Select the target machine on the **Resource** view on the Web console, and click Unmanaged.
   2. If the machine is registered to DPM, remove it from DPM.

      Display **Machine List** on the DPM Web console and click **Delete Machine**. After removing it, select **System Resource** on the SigmaSystemCenter Web console to perform **Collect**.
   3. If the machine is registered to vCenter Server, remove it from vCenter Server. Remove the target machine using VI Client.

      After removing it, select **System Resource** on the SigmaSystemCenter Web console to perform Collect.

      When the machine is registered only to vCenter Server, not to DPM, the machine is not automatically removed from vCenter Server during performed Release Resource. So you must remove it manually.
   4. If the machine is managed by BMC in NEC ESMPRO Manager, remove the target machine through the NEC ESMPRO Manager Web console.
4. Replacing the machine or motherboard.
   1. Replace the failed hardware.
   2. Configure the hardware after replacement.
      - In the environment without boot config (vIO), configure machine, BMC, HBA, and NIC as needed.

        Refer to your hardware manual to do this.

        Configure boot order and other settings through the BIOS window of the machine.

For BMC, refer to Subsection 3.8.4, "Configuring the Setting for OOB Management" to configure IP addresses, users, and the destination of the PET notification.

For HBA, configure the boot disk which you want to use in case of the SAN boot configuration.

- In the environment with boot config (vIO), configure BMC.

  Refer to Subsection 3.8.4, "Configuring the Setting for OOB Management" to configure IP addresses, users, and the destination of the PET notification.

- If the machine is managed by the Management Controller management of NEC ESMPRO Manager, set up BMC authentication key.

  For details, see NEC ESMPRO Manager Ver.5 Setup Guide.

  http://www.58support.nec.co.jp/global/download/index.html

  Also see Subsection 3.8.6, "Setting up to Use the Management Controller Management on NEC ESMPRO Manager".

5. OS recovery on the replaced machine

- If the OS or application needs to be set up, recover them using back-up data.

  Use your components or virtualization infrastructure products to prepare for OS recovery. When you use DPM, register the machine to DPM in advance. In the environment with boot config (vIO), apply boot config. Adding to them, prepare storage and network for OS recovery.

- Even though the OS or application is not set up, the virtual machine servers in the following environment are required to be updated their configuration if the NIC's MAC address is changed:

  - Hyper-V: Remove the virtual network assigned to the NIC on the virtual machine server, and then create it again.

    To do this, display Virtual Network Manager from Hyper-V Manager.

  - XenServer: Remove the old NIC information on the virtual machine server, and then register the new NIC information after replaced the machine.

    To do this, use the XenServer's command-line interface.

6. Registering the machine after replacement

1. Perform the machine registration

- In the environment without boot config (vIO), if the new machine needs to be registered to DPM, register it to DPM automatically or manually.

  Register the machine through the DPM Web console referring Subsection 3.7.4, "Registering a Managed Machine to DPM".

  After registering it, select **System Resource** on the Web console to perform **Collect**.

- In the environment with boot config (vIO), execute the machine registration script.

  In this procedure, the RegisterMachineVIO.bat is used.

- In the Hyper-V cluster, add the new machine to the cluster.

  Add the node of the machine from the cluster using Hyper-V's Failover Cluster Manager.

After adding it, select **System Resource** on the SigmaSystemCenter Web console to perform **Collect**.

- In XenServer, add the new machine to the pool.

  After adding it, select **System Resource** on the SigmaSystemCenter Web console to perform **Collect**.

- In VMware (managed by vCenter Server), if the new machine is not intended to register to DPM, add it to vCenter Server. After registering it, perform **Collect**.

  If the machine is registered to DPM, it is also registered to vCenter Server during performed **Allocate Machine**.

  Add the machine using VI Client.

  After adding it, select **System Resource** on the SigmaSystemCenter Web console to perform **Collect**.

- If the machine is not displayed on the Resource view, select Machine on the System Reosource tree on the SigmaSystemCenter Web console, and perform **Register Machine**.

2. After registering the machine, configure the machine information (NIC, HBA, distribution software, machine account.)

- General settings of the machine

  Configure the new machine in the same way as the machine before replacement, following the procedure in Subsection 4.9.1, "Configuring Settings on the General Tab."

- NIC-related settings

  Configure the new NIC in the same way as the NIC before replacement, following the procedure in Subsection 4.9.2, "Configuring Settings on the Network Tab."

- HBA-related settings

  If the HBA was configured before replacement, configure the HBA in the same way as the HBA before replacement, following the procedure in Subsection 4.9.3, "Configuring Settings on the Storage Tab."

- Distribution software settings

  If the machine was configured to be distributed software, configure the machine in the same way as the setting before replacement, following the procedure in Subsection 4.9.4, "Configuring Settings on the Software Tab."

- OOB-related settings

  If the power control by OOB Management was enabled before replacement, configure the power control in the same way as the setting before replacement following the procedure in Subsection 4.9.6, "Configuring Settings on the Account Tab."

3. If the new machine after replacement will be managed by BMC on NEC ESMPRO Manager, perform Autodiscovery manually through the NEC ESMPRO Manager Web GUI, and register the Management Controller management.

7. Adding the machine to the group after replacement

1. If the machine is working, shut down it.

   Select the new machine on the **Resource** view on the SigmaSystemCenter Web console, and click **Shutdown**.

2. Add the machine to the group
   - If the machine is intended to use as a spare machine, add it to the pool.

     Select the target operation group on the **Operations** view on the SigmaSystemCenter Web console, and click **Add Machine to Pool** to add the new machine to the operation group.
   - If the machine requires to be activated, perform **Allocate Machine**.

     Select the target host to be allocated resources on the **Operations** view on the SigmaSystemCenter Web console, and perform **Allocate Machine**.

3. If the virtual machine server is replaced, restore the evacuated virtual machines. Or register and activate the lost virtual machines again.

   If the virtual machine has moved to another virtual machine server, select that virtual machine on the **Operations** view on the SigmaSystemCenter Web console, perform **Move Virtual Machine**, and restore the target virtual machine server.

   If the virtual machin server is not allocated yet, perform **Register Master Machine** on the **Operations** view to activate it.

   If the virtual machine has lost from the Virtual view, register the virtual machine to vCenter Server by using vSphere Client.

   Then, select **System Resource** on the SigmaSystemCenter Web console and perform **Collect**. After Collect has been performed, perform **Register Machine** to register the machine to the **Resource** view.

9.10.2. Replacing a Primary NIC

To replace a primary NIC, perform the following procedure.

1. Disabling the periodical collection

   Disable the periodical configuration information collection if it is enabled.

   Click the **Environment** in the **Management** tree. Select the **General** tab of the **Environment Setting** window, and clear the **Gather Information** check box.

   Note: Do not collect the information manually either, until you complete all the procedures of exchanging a NIC.

2. Setting a target machine to be managed in SystemProvisioning if it is unmanaged

   If a target machine is unmanaged in SystemProvisioning, change the setting to Managed.

   Click the **Machine** in the **Resource** tree on the Web Console. Click **Register Machine** on the Configuration menu. Select the check box of the machine of which

NIC is to be exchanged under **Unmanaged Machine List**. Select a resource to register in the **Parent Resource** tree, and click **OK**.

3. Maintenance Mode ON

   Select the icon of a machine of which NIC is to be exchanged.

4. Shutting down the machine

   Shut down the machine through the Web Console.

5. Replacing the NIC

6. Starting the machine

   Start the machine by pushing the power button.

   If the power control functionality of OOB Management is enabled, the machine can be started in the Web Console.

   On the DPM Web Console, display the **Machine Detail** window of the target machine to confirm that the MAC address of the new NIC is displayed on the **MAC Address**.

   Start the **Machine Detail** window with the procedure below:

   1. Start the DPM Web Console.
   2. Click the Operations on the Title bar to switch to the Operations view.
   3. Click the group to which the machine belongs in the Resource tree.
   4. Details of the group appear on the Main Window.
   5. Click the name of the target machine under Machine List.
   6. The Machine Detail window appears.

7. If you want to replace the NIC installed on any of the virtual machine server listed below, update the NIC-related settings on the virtual machine server:

   - Hyper-V: Remove the virtual network assigned to the NIC on the virtual machine server, and create it again.
   - XenServer: Remove the old NIC information on the virtual machine server, and register the new NIC information after replacing a NIC.

8. Displaying the NIC information

   Select the icon of the machine of which NIC has been exchanged in the **Resource** tree, and click **Properties** on the Configuration menu. Select the **Network** tab of the **Machine Property Setting** to display the NIC information.

9. Deleting the information of the previous NIC

   The previous NIC before replacement is registered as NIC number 1. Click the **Edit**. Change the NIC number from 1 to blank under **NIC Setting**, and click **OK**.

   Select the check box of the previous NIC before replacement, and click **Delete** of the Action menu.

10. Adding the information of the new NIC (Specify manually)

    Click **Add** of the Action menu. Set 1 to the NIC Number under **NIC Setting**, and set a MAC address, switch and port.

    For configuring NIC information, see Subsection 4.9.2, "Configuring Settings on the Network Tab."

11. Maintenance Mode OFF

Select the icon of a machine of which NIC has been replaced, and click **Maintenance OFF** on the Operation menu of the Web Console.

12. If you changed the target machine to be managed in the procedure 2, change the setting to Unmanaged.

Click the **Machine** in the **Resource** tree on the Web Console. Select the check box of the target machine under **Machine List**. Click **Unmanaged** of the Action menu.

13. If you disabled the periodical collection in procedure 1, enable the setting.

Click the **Environment** in the **Management** tree. Select the **General** tab of the **Environment Setting** window, and select the **Gather Information** check box.

14. Collect Storage (when NAS is used)

When you use NAS, select **Storage** from the **Resource** tree, and then click **Collect Storage** on the Operation menu on the Web console.

Note: If NAS is not utilized, you do not need to perform the procedure 14.

9.10.3. Replacing a NIC Other Than a Primary NIC

To replace a NIC other than a primary NIC, perform the following procedures:

- The environment without boot config (vIO)

Reference: If you use an NIC for iSCSI booting, see Subsection 9.10.4, "Replacing an HBA".

1. Maintenance Mode ON

Select the icon of a machine whose NIC you are going to exchange, click **Maintenance ON** of the Action menu on the Web Console. If the machine is not activated, skip to the next procedure.

2. Shutting down the machine

Shut down the machine through the Web Console.

3. Replacing the NIC

4. Starting the machine

Start the machine from the Web Console.

Display the **Machine Detail** window of the target machine on the DPM Web Console to confirm that the MAC address of the new NIC is displayed on the **MAC Address**.

Start the **Machine Detail** window with the procedure below:

1. Start the DPM Web Console.

2. Click the **Operations** on the Title bar to switch to the **Operations** view.

3. Click the group to which the machine belongs in the **Resource** tree.
4. Details of the group appear on the Main Window.
5. Click the name of the target machine under **Machine List**.
6. The **Machine Detail** window appears.

5. If you want to replace the NIC installed on any of the virtual machine server listed below, update the NIC-related settings on the virtual machine server:
   - Hyper-V: Delete the virtual network assigned to the NIC on the virtual machine server, and create it again.
   - XenServer: Delete the old NIC information on the virtual machine server, and register the new NIC information after replacing a NIC.
6. Updating the NIC information (Collecting)

   Select the **System Resource** in the **Resource** tree, and click **Collect** on the Operation menu on the Web Console
7. Deleting the information of NIC before replacement

   Select the icon of the machine whose NIC you replaced in the **Resource** tree, and click **Property** on the Configuration menu. Select the **Network** tab of the **Machine Property Setting** to display the NIC information. Select the check box of the NIC before replacement, and click **Delete** of the Action menu.
8. Adding the information of NIC after replacement

   Select the icon of the machine whose NIC you replaced in the **Resource** tree, and click **Property** on the Configuration menu. Select the **Network** tab of the **Machine Property Setting** to display the NIC information. Click **Add** of the Action menu. For configuring NIC information, see Subsection 4.9.2, "Configuring Settings on the Network Tab."
9. Maintenance Mode OFF

   Select the icon of a machine whose NIC you replaced, and click **Maintenance OFF** of the Action menu on the Web Console.
10. Collect Storage (when NAS is used)

    When you use NAS, select **Storage** from the **Resource** tree, and then click **Collect Storage** on the Operation menu on the Web console.

Note: If NAS is not used, you do not need to perform the procedure 9.

◆ For the environment with boot config (vIO)

1. Maintenance Mode ON

   Select the icon of the machine whose NIC is to be replaced, click **Maintenance ON** on the Operation menu of the Web Console.
2. Shutting down the machine

   Shut down the machine through the Web Console.
3. Replacing the NIC
4. Starting the machine

   Start the machine through the Web console.

On the DPM Web Console, display the **Machine Detail** window of the target machine to confirm that the MAC address of the new NIC is displayed on the **MAC Address**.

Start the **Machine Detail** window with the procedure below:

1. Start the DPM Web Console.
2. Click the Operations on the Title bar to switch to the Operations view.
3. Click the group to which the machine belongs in the Resource tree.
4. Details of the group appear on the Main Window.
5. Click the name of the target machine under Machine List.
6. The Machine Detail window appears.

5. Maintenance Mode OFF

   Select the icon of a machine of which NIC has been exchanged, and click **Maintenance OFF** on the Operation menu on the Web console.

9.10.4. Replacing an HBA

To replace an HBA connected to your storage, follow the procedure below.

- NEC Storage without boot config (vIO)

Note:

Remember the WWN before and after replacement.

In the iSCSI booting environment, if you still use the same iSCSI initiator name with that before replacing an NIC, go to procedure 8 instead of performing procedure 5, 6, and 7.

1. Maintenance Mode ON

   Select the icon of a machine whose HBA you are going to exchange and click **Maintenance ON** of the Action menu on the Web console.
2. Shutting down the machine to be replaced

   Shut down the machine to be replaced through the Web console.
3. Replacing the HBA and NIC
4. Bios setting for the HBA and NIC
5. Configuring the NEC Storage Manager

   Change the WWN setting in the NEC Storage Manager. Overview of the procedure of changing the setting using the NEC Storage Manager Client (Web GUI) Ver.6.3 is as follows. For more details, see *NEC Storage Software Configuration Setting Tool User's Manual (GUI)*.

Note: Procedure is different depending on versions of the NEC Storage Manager Client (Web GUI). See the manual for your NEC Storage Manager Client (Web GUI) version.

1. Start the NEC Storage Manager Client.
2. Select the disk array that is a target of the HBA replacement.
3. Click the **File** menu, click **Configuration Settings/References**, and click **Configuration Setting** to display the **Configuration Setting** window.
4. Click **Setting Access Control** on the **Configuration Setting** window.
5. Select the LD set that has the WWN before replacement, and click **Link Path**. The **Link Path Mode Selection** window appears.
6. Click **WWPN** to display the **Link Path** window, and replace the WWN before replacement with WWN after replacement.

Note: The button names and items of **Setting Access Control** on the **Configuration Setting** window varies according to product purchase circumstances. For the details, see *NEC Storage Software Configuration Setting Tool User's Manual (GUI)*.

6. Updating storage information (Collecting)

   Click **System Resource** in the **Resource** tree, and click **Collect** on the Operation menu on the Web Console.
7. Changing the HBA settings

   Delete the HBA before the exchange and add the HBA after the exchange on the **Storage** tab of the **Machine Property Setting** in the **Resource** view on the Web Console.
8. Starting the machine

   Start the machine through the Web Console.
9. Maintenance Mode OFF

   Select the icon of a machine whose HBA you replaced, and click **Maintenance OFF** of the Action menu on the Web Console.

- Symmetrix ,CLARiiON or VNX, without boot config (vIO)

Note: Remember the WWPN / WWNN before and after replacement.

1. Maintenance Mode ON

   Select the icon of the machine whose HBA you want to replace and click **Maintenance ON** of the Action menu on the Web Console.
2. Delete HBA from the machine setting before replacement

   Delete HBA before replacing from the **Storage** tab of the **Machine Property** setting on the **Resource** view.

3. Shutting down the machine to be replaced

   Shut down the machine to be replaced through the Web console.

4. Releasing the connection from disk volume (use the storage management software)

   Release the connection from the disk volume that is connected to the original HBA using the Storage management software.

5. Replacing the HBA of the original machine.

6. Bios setting for the HBA

7. Connecting to disk volume (use the storage management software)

   Connect the disk volume connected to the original HBA again using the Storage management software. Configure the same status as that in the procedure 3.

8. Associating the new HBA

   Associate the HBA with the disk array path using the ssc command for HBA association. For the details of associating HBA, see *ssc Command Reference*.

9. Delete the HBA information that is not used anymore

   Delete the HBA association with the disk array path using the ssc command to delete the HBA association. For the details of deleting HBA association, see *ssc Command Reference*.

10. Updating the storage information (collecting)

    Click the **System Resource** in the **Resource** tree, and click **Collect** on the Operation menu on the Web Console.

11. Updating the HBA information

    Add the HBA after the exchange on the **Storage** tab of the **Machine Property Setting** in the **Resource** view on the Web Console.

12. Starting the machine

    Start the machine from the Web Console.

13. Maintenance Mode OFF

    Select the icon of a machine whose HBA you exchanged, and click **Maintenance OFF** of the Action menu on the Web console.

◆ For the environment with boot config (vIO)

1. Maintenance Mode ON

   Select the icon of the machine whose HBA you are going to replace and click **Maintenance ON** of the Action menu on the Web console.

2. Shutting down the machine to be replaced

   Shut down the machine to be replaced through the Web console.

3. Replacing the HBA and NIC

4. Starting the machine

   Start the machine through the Web console.

5. Maintenance Mode OFF

   Select the icon of a machine whose HBA you exchanged, and click **Maintenance OFF** of the Action menu on the Web console.

9.10.5. Replacing a Disk

The machine will be managed as the same machine before disk replacement. You need to perform the following procedure to replace the disk.

1. Preparing the back-up data created previously.
2. Maintenance Mode ON

   Select the icon of a machine whose disk you are going to replace in the System Resource tree on the Web Console, and click **Maintenance ON** of the Action menu.
3. Evacuating the virtual machine

   When you want to replace the virtual machine server, evacuate the virtual machines on the virtual machine server to another virtual machine server. If they cannot be evacuated, shut down those virtual machines.
4. Removing registration of the machine to be replaced on the related products
   - VMware
     1. Release the connection of the target ESX from vCenter Server.
   - XenServer
     1. Delete XenServer from the XenCenter's pool.
     2. Release the connection of XenCenter from XenServer.
   - Hyper-V Cluster
     1. Evict the node machine from the cluster.
5. Shutting down the machine

   Shut down the machine whose disk to be replaced.
6. Replacing the disk.
7. Reconfiguring the OS image

   Reconfigure the OS image by using the back-up data.

   If you have replaced the virtual machine server, restore the OS image by installing ESX.
8. Starting the machine

   Start the machine through the Web Console.
9. Register the new machine after replacement on the related products
   - VMware
     1. Connect ESX to vCenter Server.
   - XenServer
     1. Connect XenServer to XenCenter.
     2. Add XenServer to the XenCenter's pool.
   - Hyper-V Cluster
     1. Add the node machine to the cluster.

10. If the virtual machines are evacuated to another virtual machine server in the virtual environment, restore it to its original location. If the virtual machine was not able to be evacuated, restore the virtual machine from the backup data.
11. Updating the information (Collecting)
12. Maintenance Mode OFF

    Select the icon of a machine whose disk you replaced, and click **Maintenance OFF** of the Action menu on the Web Console.

9.10.6. Replacing a Device on an ESX Other Than a Hard Disk

To replace a device on an ESX other than a hard disk, follow the procedure below.

Note: When replacing the mother board, see Subsection 9.10.1, "Replacing a Machine or a Motherboard." To replace the mother board is classified as an operation of changing machine because the machine that its mother board has been changed is recognized as another machine.

Reference: For details of operation with vCenter Server, see a product manual of VMware, Inc.

1. Maintenance Mode ON.

   Select the icon of a virtual machine which is on a target ESX in the **Resource** tree and click **Maintenance ON** of the Action menu on the Web Console.
2. Shutting down the ESX

   Shut down the ESX through the Web Console.
3. Replacing the device on the ESX

   Replace the device on the ESX after shutting done the ESX.

   For replacement of devices on an ESX, see a product manual of VMware, Inc.
4. Connecting vCenter Server to the ESX

   Check that the vCenter Server is connected to the ESX.
5. Maintenance Mode OFF.

   Select the icon of a virtual machine which is on a target ESX, and click **Maintenance OFF** of the Action menu on the Web Console.
6. Updating the information (Collecting)

   Click the **System Resource** in the **Resource** tree, and click **Collect** on the Operation menu on the Web Console to update the registered information.

9.10.7. Replacing a Device Other Than a Hard Disk on XenServer

To replace a device other than a hard disk on XenServer, follow the procedure below.

Note: The mother board replacement is equal to the machine replacement because the machine whose mother board is replaced is recognized as another machine from that before replacing its mother board. For replacing the mother board, see Subsection 9.10.1, "Replacing a Machine or a Motherboard."

Reference: For details of operation with XenCenter, see a product manual of Citrix Systems, Inc.

1. Maintenance Mode ON

   Select the icon of a virtual machine which is on a target XenServer in the **System Resource** tree on the Web Console, and click **Maintenance ON** of the Action menu.

2. Shutting down the XenServer

   Shut down the XenServer from XenCenter.

3. Replacing the device on the XenServer

   Replace the device on the XenServer after shutting done the XenServer. For the restoration of XenServer, see a product manual of Citrix Systems, Inc.

4. Connecting to the XenServer from XenCenter

   Connect to the XenServer from XenCenter.

5. Maintenance Mode OFF

   Select the icon of a virtual machine which is on a target XenServer in the **System Resource** tree on the Web Console, and click **Maintenance OFF** of the Action menu.

6. Updating the information (Collecting)

   Click the **System Resource** in the **System Resource** tree on the Web Console, and click **Collect** on the Operation menu to update the registered information.

9.11. Extracting Logs

When you ask investigation to our PP Support Service, extract logs with the procedure in this section. In addition, other than the logs, we ask you for providing the following information to the best of your knowledge.

- Outline of the failure (details of the failure and information, such as what kind of phenomenon occurred)
- Date and time the failure occurred
- Procedure that the failure occurred (information of what kind of operations you executed when the failure occurred)
- Error message displayed on the window
- Network configuration
- Machine name, IP address, MAC address, and device model of a managed resource (If the issue is concerning a managed machine.)

Note:

▪ Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

▪ If you cannot investigate a cause of failure from SigmaSystemCenter logs, you need to investigate the configuration information database. For how to collect the configuration information database, see Subsection 10.2.1, "Backing up SystemProvisioning."

9.11.1. Extracting SystemProvisioning Log

To acquire log files of SystemProvisioning, event logs and debug logs, perform the following procedure:

1. To launch the event viewer, click **Control Panel** on the **Start** menu, click **Administration Tool**, and click **Event Viewer**.
2. **Event Viewer** screen appears. Click **Application** to acquire event logs.
3. Extract the log files recorded on the following folder.

   A folder where SystemProvisioning is installed\log

   A folder where SystemProvisioning is installed\Provisioning\Logs

Note: The default path is "%ProgramFiles%\NEC\PVM\log" and "%ProgramFiles%\NEC\PVM\Provisioning\Logs."

9.11.2. Extracting System Monitor - Performance Monitoring Services Log

System Monitor - Performance Monitoring Services records errors and operation event information on an event log on a management server with a name of "System Monitor - Performance Monitoring Services." Error information, such as failure in starting System Monitor - Performance Monitoring Services, may be recorded on the application event logs or system event logs.

If a problem occurs in System Monitor - Performance Monitoring Services, save the application log, system log, and System Monitor - Performance Monitoring Services log on the Event Viewer in a text format.

1. Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Event Viewer** to start Event Viewer.
2. The **Event Viewer** screen appears. Click **System Monitor - Performance Monitoring Services** and extract event logs, application logs, and system logs.
3. Extract files of detail logs recorded on the directory (*A folder where System Monitor - Performance Monitoring Services* is installed\log).

Note: The default path is "%ProgramFiles%\NEC\SystemMonitorPerformance\log".

9.11.3. Extracting DPM Log

To extract a DPM log, perform the following procedure.

You can collect the log from a management server and a managed machine.

◆ If you are using a machine running Windows (x86 or x64)

1. End all processes related to DPM

Note: Check that all the following conditions are met:

・ Any scenario is not being executed. If there is any scenario being executed, wait until the scenario is completed.

・ The DPM Web Console, including other tools of DPM is not started.

2. Log on to the management server and the machine where an error occurred with an Administrator authority.
3. This procedure does not need to be performed in logging the management server, so skip to the procedure 4. To log the management server, copy the following folder to the location where you want to place it.

SigmaSystemCenter installation DVD-R:\DPM\TOOLS\DpmLog

4. Start the command prompt.

   Click the **Start** menu, click **All Programs**, click **Accessories**, and click **Command Prompt**.

5. Move to the folder below:

   - For the management server: *DPM installation folder*\DpmLog
   - For the managed machine: the folder which has been copied at the procedure 3

     E.g.) The case the folder will be copied to "C:\" at the procedure 3.

     ```
     cd /d C:\Dpmlog
     ```

Note: The default installation path of DPM is:
"%ProgramFiles%\NEC\DeploymentManager "

6. Run **DpmLog.exe** with the option **-A**.

   ```
   DpmLog.exe -A
   ```

Note: Do not operate DPM during executing DpmLog.exe.

7. After sending the log file, delete the folder where the log file is stored ("log" folder), along with the contents of this folder.

◆ If you are using a machine running Linux

1. Collect the following files. When collecting the files, make sure not to change the time stamp, by using options, such as the **-p** option of the cp command.

   ・ System configuration files
   /etc/hosts
   /etc/resolv.conf
   /etc/sysconfig/network
   /etc/sysconfig/clock
   /etc/sysconfig/iptables
   /etc/sysconfig/ipchains
   /etc/rc.d/rc
   /etc/sysconfig/network-scripts/ifcfg-* *files*

   ・ Version information
   Red Hat: /etc/redhat-release
   SuSE: /etc/SuSE-release

・ Files related to DPM Client

/opt/dpmclient/all files in this folder

/var/log/message* all files whose file names start with "messages"

2. Run the following commands and extract the result.

・ Network information

```
ifconfig –a
netstat -a | grep 560
route
ps -axm | grep depagtd
iptables –L
```

・ System information

```
uname -a
lspci -vx
dmidecode
biosdecode
dmesg -s 65536
```

Note: When you send the file, send the file after compressing the file with the Linux zip or gzip command.

9.11.4. Extracting NEC ESMPRO Manager Log

To extract operation logs, detailed logs, application logs, and system logs of NEC ESMPRO Manager, perform the following procedure.

Note: The default installation path of NEC ESMPRO Manager is as follows:

▪ "%Program Files%\NEC\SMM."

1. Run the following command at Command Prompt.

NEC ESMPRO Manager Installation Folder\ESMMNG\collectm\collectm.exe

2. Extract the information in the following folder.

NEC ESMPRO Manager Installation Folder\ESMMNG\collectm\smlog

◆ Extract the application log with the following procedure:

1. Log into the Web Console of NEC ESMPRO Manager, and click the **About NEC ESMPRO Manager**.

2. Click the **Application Log** tab on the displayed screen.

3. Click the **Download** to download a zip format file.

9.12. Changing IP Address of a Management Server

This section provides information and notes on effects may be caused by changing an IP address, or a host name, of a management server. If you are changing an IP address or a host name of a management server, see the following to change settings of each component in SigmaSystemCenter.

9.12.1. Before Changing IP Address of a Management Server

If DPM Server is installed on a management server, settings of DPM must be changed before changing the IP address of the management server. First, see Subsection 9.12.2, "Changing Settings on DeploymentManager" to change settings of DPM and the IP address of the management server. After that, see from Subsection 9.12.3, "Changing Settings on SystemProvisioning" to 9.12.5, "Changing Settings on NEC ESMPRO Manager and NEC ESMPRO Agent" to change the setting of each component.

9.12.2. Changing Settings on DeploymentManager

If DPM Server is installed on a management server, perform the following procedure:

An IP address is used for connecting to DPM Server; therefore, if you are changing a host name of a management server, you do not need to configure DPM.

If DPM Server is NOT installed on a management server, reboot the machine where DPM Server is installed after changing the IP address of the management server.

1. Terminate processes on DPM.

Note: Verify that the following conditions are met:

・ Any scenario is not being executed. If there is any scenario being executed, wait until the scenario is completed.

・ The DPM Web Console, including other tools of DPM is not started.

---

2. Change the value for the **IP Address** on the **General** tab, located on the **Detail Setting** window of DPM Server, to **ANY** if any other value is configured.

Display the **General** tab on the **Detail Setting** window with the following procedure:

1. Start the DPM Web Console.

2. Click the **Management** on the Title bar to switch to the **Management** view.

3. Click the **DPM Server** in the **Management** tree.

4. Details of DPM Server appear on the Main Window.
5. Click the **Detail Setting** on the Configuration menu.
6. The **Detail Setting** window appears.
7. Select the **General** tab.

3. Change the IP address of the management server.
4. Reboot the management server.
5. On the Web Console of DPM, if you have selected **ANY** in the IP Address on the **General** tab on the **Detail Setting** window in the procedure 2, re-configure the IP address of the management server as necessary.
6. DPM Client detects that the IP address of the management server has been changed at the next communication, and after that, DPM Client configures itself automatically to connect to the new IP address. However, DPM Client needs to be able to connect to the management server whose IP address has been changed through the network.

9.12.3. Changing Settings on SystemProvisioning

If you have changed an IP address of a management server, SystemProvisioning requires the following settings:

If you have changed a host name, substitute "host name" for "IP address" in the following procedure.

- If SystemProvisioning is installed as a subsystem on a management server, change settings of subsystem.

  1. Click the **Management** on the Title bar to switch to the **Management** view.
  2. Click the **Subsystem** on the **Management** tree.
  3. Click the **Edit** on a subsystem to edit under **Subsystem List**.
  4. **Edit Subsystem** appears on the Main Window. Change the IP address.
  5. Click **OK**.

- If Out-of-Band (OOB) Management is used, change the setting of an alert destination of PET of a managed machine.

  Reference: For the setting of an alert destination of PET, see Subsection 3.10.3, "Configuring Alert Destination of PET and Alert Level."

- If the performance data collection is enabled and System Monitor - Performance Monitoring Services on the management server whose IP address is being changed is used for collecting performance data, change the IP address setting on the **Performance Monitor** tab of the Group Property Setting or the Model Property Setting.

9.12.4. Changing Settings on System Monitor - Performance Monitoring Services

If an IP address is specified as a management server‘s host name or a machine to be monitored on the Management Console of System Monitor - Performance Monitoring Services, the IP address must be changed to the new IP Address with the following procedure:

Reference: For details of procedures of System Monitor - Performance Monitoring Services, see *System Monitor - Performance Monitoring Services User’s Guide*.

- Settings about the Management Console

  On the Management Console of System Monitor - Performance Monitoring Services, if an IP address is registered as a console machine’s host name, change the setting.

  Note: If the Management Console of System Monitor - Performance Monitoring Services is not used, this procedure is unnecessary.

  1. On the Main menu, click Tool and Set Management Console.
  2. On the Management Console dialog, check the Host Name and change it as necessary.
  3. Click OK.

- Connection settings about a management server

  When changing the IP address of a management server that is registered in the Management Console of System Monitor - Performance Monitoring Services, delete the setting of the management server first, and register it with the new one.

  1. On the tree of the Main Window, right-click the management server that is registered with the previous IP address and click **Delete Management Server**.
  2. On the Main menu, click **Tool** and **Add Management Server**.
  3. **Management Server** dialog appears. Configure the new IP address.
  4. Click **OK**.

- Connection settings about a SystemProvisioning management server

  On System Monitor - Performance Monitoring Services, if the previous IP address of the management server is registered as a hostname of a SystemProvisioning management server, the setting must be changed.

Note: If synchronizing SystemProvisioning configuration information or reporting a performance anomaly to SystemProvisioning is not used, this procedure is unnecessary.

1. On the tree of the Main Window, right-click the management server and click **Set Configuration**.
2. On the **Configuration** dialog, check the **SystemProvisioning Management Server name** on the SystemProvisioning tab and change it as necessary.
3. Click **OK**.

- Connection settings about a monitored machine

  If a management server is also registered as a machine to be monitored in System Monitor - Performance Monitoring Services, the setting must be changed.

1. On the tree of the Main Window, right-click the machine to be monitored and click **Machine Settings**.
2. **Machine Settings** dialog appears. Check the **Machine Name** and the **IP Address**, and change them as necessary.
3. Click **OK**.

9.12.5. Changing Settings on NEC ESMPRO Manager and NEC ESMPRO Agent

If you have changed the IP address of the management server, follow the procedures below to configure NEC ESMPRO Manager and NEC ESMPRO Agent:

- Changing settings on NEC ESMPRO Manager

  [When Windows GUI is in use]

1. If you use Inter-Manager Communication, change the IP address setting on a Neighbor Manager computer that communicates with the management server of which the IP address has been changed.

   Note: Inter-Manager Communication is the feature only for Windows GUI.

   1. Launch the Operation Window.
   2. On the Operation window menu, click **Options**, select **Customize**, and select **Remote Manager**.
   3. On the **Remote Manager** screen, change the destination IP address to the new IP address on the **Neighbor Manager** tab.

2. From **Start** menu, click **Control Panel**, click **Administrative Tool**, and click **Services**, and then restart the following services:

<Stopping order of services>

1. ESMPRO/SM Event Manager
2. ESMPRO/SM CommonComponent
3. ESMPRO/SM Web Container

<Starting order of services>

1. ESMPRO/SM Web Container
2. ESMPRO/SM CommonComponent
3. ESMPRO/SM Event Manager

◆ Changing settings on NEC ESMPRO Agent

If an IP address or a host name of a management server is specified on the setting of Manager Report (TCP/IP In-Band), see "◆ Manager Report (TCP/IP In-Band)" in Subsection 3.9.1, "Configuring the Setting on a Machine Running Windows" to re-configure it.

Note: Even if a host name is specified, perform this procedure to correlate the new IP address to the host name.

If an IP address of a management server is specified on the settings of SNMP Trap listed below, see "◆ SNMP Trap" in Subsection 3.9.1, "Configuring the Setting on a Machine Running Windows" to re-configure it.

- An IP address of a management server is specified as a SNMP Trap destination.
- On the security setting of SNMP Service, an IP address of a management server is configured on the Accept SNMP Packets from any host.

◆ Changing settings on NEC ESMPRO Agent (VMware)

If Manager (SNMP) is used, change the Trap destination on the SNMP Trap screen that appears when Manager (SNMP) is selected from a list of reporting measures on the Base Setting screen. If other than Manager (SNMP) are used, change a destination to report on the Base Setting screen that appears when the Report is selected.

Note: Change settings of reporting from the Control Panel (ESMamsadm).

<How to launch the Control Panel (ESMamsadm) >

1. Login as a user with a root authority.
2. Move to the directory where NEC ESMPRO Agent is installed.

```
# cd /opt/nec/esmpro sa
```

3. Move to the directory where ESMamsadm is stored.

```
# cd bin
```

4. Launch the Control Panel (ESMamsadm).

```
# ./ESMamsadm
```

5. If IP addresses that can access to snmpd are restricted with the following files, change the setting of the IP address.

```
/etc/snmp/snmpd.conf
/etc/hosts.allow, hosts.deny
```

If the IP address of a managed server on which NEC ESMPRO Agent is running has been changed, follow the procedures below to configure NEC ESMPRO Manager.

◆ Changing settings on NEC ESMPRO Manager

Select either way to change the IP address according to the GUI in use:

1. Change the IP address of the managed server

   [When Web GUI is in use]

   1. Launch NEC ESMPRO Manager.
   2. Select **Setting** tab, and click **Connection Setting** to display the **Connection Setting** screen.
   3. Click the **Edit** to display the **Edit** screen.
   4. To change the OS IP address, enter the new IP address in the **OS IP Address** box of **Common Setting**. To change the BMC IP address, enter the new IP address in the **IP Address** box of **Setting for "Management controller"** management.
   5. Click **Apply**.
   6. Click **Check Connection** to verify connection to the server.

   [When Windows GUI is in use]

   1. Launch the Operation Window.
   2. Right-click on the managed server icon to display the **Properties** window01.
   3. Change the IP address.
   4. Right-click on the managed server icon to display the **Interface Properties** window.

5. Double click on the **IP Address** on the properties list to enter the new IP address.

2. If you use Remote Wakeup functionality, change the IP broadcast address as needed.

   [When Web GUI is in use]

   1. Launch NEC ESMPRO Manager.
   2. Select **Setting** tab and click the **Remote Wake Up Setting** of the managed machine to display the **Remote Wake Up Setting** screen.
   3. Click the **Edit** to display the **Edit** screen.
   4. Change the IP Broad cast Address, and click **Apply**.

   [When Windows GUI is in use]

   1. Launch the Operation Window.
   2. Right-click on the managed server icon to display the **Properties** window.
   3. Select **Function** tab and enter the new RWU IP broadcast address.

Follow the procedures below if you are using Windows GUI to manage servers.

1. If IP address filtering is enabled on the **Receive Alert Filter** or **Send Alert Filter**, change the setting.
   1. Launch the Operation Window.
   2. Click **Tools**, select **Alert Filter**, and select **Receive Alert Filter** or **Send Alert Filter**, to display the setting screen of the filter.
   3. If an IP address is used for filtering conditions, change the IP address to the new IP address.

2. If IP address filtering is enabled on alert display filtering setting of the AlertViewer, change the setting.
   1. Launch the AlertViewer.
   2. Display the **Filtering Setting** screen on the **Filter settings** bar.
   3. If an IP address is used for filtering conditions, change the IP address to the new IP address.

3. If a network address is to be changed of the map on the Operation window, change the setting.
   1. Launch the Operation Window.
   2. Right-click on the map icon which to change the network address to display the **Properties** window.
   3. Change the Network Address.

10. Backup and Restoration

This chapter explains the methods of backup and restore during operation of SigmaSystemCenter.

This chapter contains the following sections:

- 10.1 Backup Plan....470
- 10.2 Backing up and Restoring SystemProvisioning....471
- 10.3 Backing up and Restoring System Monitor - Performance Monitoring Services....474
- 10.4 Backing up and Restoring DPM....477
- 10.5 Backing up and Restoring NEC ESMPRO Manager....483

10.1. Backup Plan

Back up setting information of management server components as needed. If you back up the information, even if the management server is faulted, for some reason, such as a failure of the hardware, you can restore the condition. You can keep the distribution image (restoration image) latest by backing up your management server and managed machine after every update, so that you can restore when a failure happened. This section provides the outline and method for backing up various machines.

10.1.1. Management Server

- Configuration information of SystemProvisioning

  We recommend that you back up the configuration information of SystemProvisioning periodically.

  For backing up and restoring the configuration information, see Section 10.2, "Backing up and Restoring SystemProvisioning."

- Configuration information of System Monitor - Performance Monitoring Services

  We recommend that you back up the configuration information of System Monitor - Performance Monitoring Services and the performance data periodically.

  For backing up and restoring the configuration information, see Section 10.3, "Backing up and Restoring System Monitor - Performance Monitoring Services."

- Configuration information of DPM
  We recommend that you back up the configuration information of DPM periodically.
  For backing up and restoring the configuration information, see Section 10.4, "Backing up and Restoring DPM."

- Configuration information of NEC ESMPRO Manager
  We recommend that you back up the configuration information of NEC ESMPRO Manager periodically.
  For backing up and restoring the configuration information, see Section 10.5, "Backing up and Restoring NEC ESMPRO Manager."

10.1.2. Managed Machine

To keep distribution of SigmaSystemCenter the latest, you need to back up the managed machine using DPM to make the distribution image (restoration image) the latest. If you back up the machine using DPM, shutdown the machine and back up the machine. The time taken for backing up differs according to the disk capacity or network state.

If update runs on the machine frequently, back up the machine with the following method.

- Back up when the operation load is low
- Back up manually on line

10.2. Backing up and Restoring SystemProvisioning

Back up the configuration database, configuration files, and registries as the occasion demands. You can restore the configuration database even if a management server breaks down due to such reasons as hardware failure.

You can back up and restore the configuration database using the *sqlcmd* command provided by SQL Server.

Reference: For the details of the sqlcmd command, see the following URL of Microsoft Corporation.

http://msdn2.microsoft.com/en-us/library/ms170207.aspx

Note:

▪ If you copy and paste the commands described in this section, it might cause an execution error. Enter the commands directly.

▪ Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

▪ A registry path of Windows OS is different according to whether it is x86 OS or x64 OS. The registry path in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node" for "HKEY_LOCAL_MACHINE\SOFTWARE."

▪ The initial *sa* password of SQL Server 2008 R2 that is installed with SystemProvisioning is "Rc76duvg." If you are a system administrator, change the password using the sqlcmd command.

▪ If you change the instance name from its default name, *SSCCMDB*, the name needs to be in the " *(local)\the instance name*" form. In addition, if you have transferred the configuration database to SQL Server 2008 R2 on other server in the network after installing SigmaSystemCenter, the instance name needs to be in the "*the server name\the instance name*" form.

10.2.1. Backing up SystemProvisioning

To back up SystemProvisioning, perform the following procedure:

1. Stopping the Web Console

   Close the Web Console if it is open.

2. Stopping SystemProvisioning.

   To stop SystemProvisioning, see Subsection 9.1.1, "Starting, Restarting, and Stopping SystemProvisioning."

3. Backing up files

Back up the files in the SystemProvisioning installation directory. Back up the files without changing their saved permission.

Note: The default installation directory is %ProgramFiles%\NEC\PVM.

4. Backing up registries

Back up the registries in HKEY_LOCAL_MACHINE\SOFTWARE\NEC\PVM.
You can back up them exporting the data from Registry Editor.

5. Running the backup command

Run the following command at the command prompt. This is the example of creating a backup file **backup.dat** in \temp of the C drive.

```
> sqlcmd -E -S (local)\SSCCMDB
1> backup database pvminf to disk = 'c:\temp\backup.dat'
with init
2> go
```

Note: If you have changed the instance name from the default instance name "SSCCMDB", specify (*local*)*the instance name*.

6. Starting SystemProvisioning

Start SystemProvisioning after the backup has completed. For the procedure, see Subsection 9.1.1, "Starting, Restarting, and Stopping SystemProvisioning."

10.2.2. Restoring SystemProvisioning

Restore the contents in the backup files after initializing the configuration database.

To restore SystemProvisioning, perform the following procedure:

1. Stopping the Web Console

Close the Web Console if it is open.

2. Stopping SystemProvisioning

To stop SystemProvisioning, see Subsection 9.1.1, "Starting, Restarting, and Stopping SystemProvisioning."

3. Overwriting the backup files

Overwrite the backed up files in the SystemProvisioning installation directory.

Note: The default installation directory is "%ProgramFiles%\NEC\PVM".

4. Restoring registries

Restore the registries in HKEY_LOCAL_MACHINE\SOFTWARE\NEC\PVM.
You can restore them importing the data from Registry Editor.

5. Running the restoration command

Run the following command at the command prompt. This is the example of restoring from a backup file **backup.dat** in \temp of the C drive.

```
> sqlcmd -E -S (local)\SSCCMDB
1> restore database pvminf from disk =
'c:\temp\backup.dat' with replace
2> go
```

Note: If you have changed the instance name from the default instance name "SSCCMDB", specify (*local*)*the instance name*.

6. Starting SystemProvisioning

Start SystemProvisioning after the restoration has completed. For the procedure, see Subsection 9.1.1, "Starting, Restarting, and Stopping SystemProvisioning."

10.3. Backing up and Restoring System Monitor - Performance Monitoring Services

You can back up and restore the database of System Monitor - Performance Monitoring Services using the sqlcmd command provided by SQL Server.

Note:

▪ If you copy and paste the commands described in this section, it might cause an execution error. Enter the commands directly.

▪ Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

10.3.1. Backing up System Monitor - Performance Monitoring Services

To back up System Monitor - Performance Monitoring Services, perform the following procedure:

1. Stopping the System Monitor Management Console

   Select **Exit** from the **File** menu of the management console main window of System Monitor - Performance Monitoring Services to close the console.

2. Stopping the Performance Monitor Service

   Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, and double-click **Services** to start the Services Snap-in.

   Right-click **System Monitor Performance Monitoring Service**, and click **Stop**.

3. Backing up files

   Back up the following three files in the directory where System Monitor - Performance Monitoring Services is installed.

   Note: The default directory is "%ProgramFiles%\NEC\SystemMonitorPerformance."

   bin\rm_client.xml

   bin\rm_service_init.xml

   bin\rm_database.xml

4. Backing up database

Run the following command at the command prompt. This is the example of creating a backup file **sysmonbk.dat** in \temp of the C drive.

```
> sqlcmd -E -S (local)\SSCCMDB -Q "backup database
RM_PerformanceDataBase2 to disk = 'c:\temp\sysmonbk.dat'
with init"
```

Note: If you changed the default instance "SSCCMDB," enter "(local)*instance name.*"

5. Starting the Performance Monitor Service

Start the Performance Monitor Service.

Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in.

Right-click **System Monitor Performance Monitoring Service**, and click **Start**.

10.3.2. Restoring System Monitor - Performance Monitoring Services

To restore System Monitor - Performance Monitoring Services, perform the following procedure:

1. Stopping the System Monitor Management Console

Select **Exit** from the **File** menu of the management console main window of System Monitor - Performance Monitoring Services to close the console.

2. Stopping the Performance Monitor Service

Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in.

Right-click **System Monitor Performance Monitoring Service**, and click **Stop**.

3. Overwriting backup files

Overwrite the three backup files in the directory where System Monitor - Performance Monitoring Services is installed which backup are collected.

Note: The default directory is "%ProgramFiles%\NEC\SystemMonitorPerformance."

bin\rm_client.xml

bin\rm_service_init.xml

bin\rm_database.xml

4. Running the restoration command

Run the following command at the command prompt. This is the example of restoring the backup file **sysmonbk.dat** in \temp of the C drive.

```
> sqlcmd -E -S (local)\SSCCMDB -Q "restore database
RM_PerformanceDataBase2 from disk =
'c:\temp\sysmonbk.dat' with replace"
```

Note: If you changed the default instance "SSCCMDB," enter "(local)*instance name.*"

5. Starting the Performance Monitor Service

Start the Performance Monitor Service.

Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in.

Right-click **System Monitor Performance Monitoring Service**, and click **Start**.

10.4. Backing up and Restoring DPM

Note:

▪ If you copy and paste the commands described in this section, it might cause an execution error. Enter the commands directly.

▪ Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

10.4.1. Backing up Data of DPM When Configuring the Initial Setup or Changing the Configuration

Save the following data when changing the configuration from the menu on the DPM Web Console.

Note: Unless the configuration is changed, the following data do not have to be saved.

◆ Files associated with user management

DPM Installation Folder\WebServer\App_Data\Data

- Encypted.dat
- DpmProfile.xml

Note: The default installation folder is "%ProgramFiles%\NEC\DeploymentManager."

◆ Paths of the folder for storing images and the folder for storing backup images

The value configured in the **Folder for Backup Image** and the value configured in the **Folder for Image** on the **General** tab, located on the **Detail Setting** window of DPM Server.

Display the **General** tab on the **Detail Setting** window with the following procedure:

1. Start the DPM Web Console.
2. Click the **Management** on the Title bar to switch to the **Management** view.
3. Click the **DPM Server** in the **Management** tree.
4. Details of DPM Server appear on the Main Window.
5. Click the **Detail Setting** on the Configuration menu.
6. The **Detail Setting** window appears.
7. Select the **General** tab.

◆ Others

If you change files and registries manually, save the configuration content.

10.4.2. Backing up Data Updated When Operating DPM

You can back up the data that are updated when operating DPM with the processes, such as registering / modifying / deleting a managed machine, adding / modifying / deleting a group, creating a package from the Image Builder, and creating, changing, or executing a scenario. If you execute these operations, back up the data with the following procedure on the machine where DPM Server is installed.

Note: Log in to the system with a user with the administrator authority and execute this operation.

1. End all processes related to DPM.

Note: Check that:

・Any scenario is not being executed. If there is any scenario being executed, wait until the scenario is completed.

・The DPM Web Console, including other tools of DPM is not started.

2. Stopping the DPM services

Click **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in. Stop all the services starting with *DeploymentManager*. Right-click the service name, and click **Stop**.

3. Backing up data

Back up the following data in the directory where DPM is installed.

- All files in the Datafile folder
- All files in the PXE\Images folder
- All files in the Linux folder
- All files in the Log folder

Note:

・The default directory is "%ProgramFiles%\NEC\DeploymentManager."

・Save the DPM installation folder path because you will need the path when restoring DPM.

- All data in the Folder for Image

Note:

▪ The default folder, where image files are stored in, is "C:\Deploy".

▪ The folder size can be too big because registered package data and OS image files for installation are stored in the Folder for Image; so back up the folder only when adding, changing, or deleting the data.

- All data in the Folder for Backup Image

Note: Back up the data only if there is a change from when you backed up the files the last time.

4. Backing up database

Run the following command at the command prompt to collect the backup file, DPM.bak.

```
osql.exe -E -S localhost\DPMDBI
BACKUP DATABASE DPM
TO DISK='DPM.bak'
WITH INIT
GO
```

Note:

・ The database uses the following fixed parameters.

The instance name: DPMDBI

The database name: DPM

・ The backup files are created in the following folder.

Microsoft SQL Server installation folder\Backup

The default installation path is as follows:

"%ProgramFiles%\Microsoft SQL Server\MSSQL10_50.DPMDBI\MSSQL."

5. Backing up data recorded in registry

Run the following command at the command prompt to collect the backup file, RegExportDPM.reg.

- With x86 OS

```
regedit /e RegExportDPM.reg
"HKEY_LOCAL_MACHINE\SOFTWARE\NEC\DeploymentManager"
```

- With x64 OS
  ```
  regedit /e RegExportDPM.reg
  "HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\NEC\
  DeploymentManager"
  ```

Note: The backup files are created in the current directory where you ran the command.

6. Starting the DPM Services

Click **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in. Start all the services starting with *DeploymentManager*. Right-click the service name, and click **Start**.

10.4.3. Restoring DPM

To restore the backed up data after re-installing DPM, perform the following procedure:

Note:

▪ Restoring can be executed only on a machine that is the same OS (x86 / x64) with the machine on which the backup was acquired.

▪ Log in to the system with a user with the administrator authority and execute this operation.

1. Install DPM.

Note: Specify the path saved in the procedure 3 in Subsection 10.4.2, "Backing up Data Updated When Operating DPM" for the DPM installation folder path.

2. Configuring DPM Server

For "◆ Files associated with user management", overwrite the backed up folder.

Start the DPM Web Console and configure the setting that you have saved in Subsection 10.4.1, "Backing up Data of DPM When Configuring the Initial Setup or Changing the Configuration".

3. Stopping the DPM services

Click **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in. Stop all the services starting with *DeploymentManager*.

Right-click the service name, and click **Stop**.

4. Copying data

Overwrite the backed up folder path with the data that you have backed up in the procedure 3 in Subsection 10.4.2, "Backing up Data Updated When Operating DPM".

5. Copying database

Overwrite the backed up folder path with the data that you have backed up in the procedure 4 in Subsection 10.4.2, "Backing up Data Updated When Operating DPM".

Note: The backup files are created in the following folder.

Microsoft SQL Server installation folder\Backup

The default installation path is as follows:

"%ProgramFiles%\Microsoft SQL Server\MSSQL10_50.DPMDBI\MSSQL."

---

6. Checking the settings of the backup files that are copied to the folder

1. Check the properties of the backup files. Right-click the backup file name and click **Properties**.
2. Check if there is a user that starts with *SQLServerMSSQL* in the User List on the **Security** tab.
3. Click **Detail Setting**. If there is the user in the procedure 2, check that the **Include inheritable permissions from this object's parent** check box is selected. If there is not the user, select the check box. If this check box is selected, a user that starts with *SQLServerMSSQL* is added in the User List on the **Security** tab.

7. Running the restore command

Run the following restore command at the command prompt.

```
osql -E -S localhost\DPMDBI
RESTORE DATABASE DPM
FROM DISK = 'DPM.bak'
WITH REPLACE
GO
```

Note: The database uses the following fixed parameters.

The instance name: DPMDBI

The database name: DPM

---

8. Applying backup files

Apply RegExportDPM.reg that you have backed up in the procedure 5 in Subsection 10.4.2, "Backing up Data Updated When Operating DPM" by the method, such as double-clicking the file from the Explorer.

9. Restoring files and registries

If you have changed files and registries manually, apply the saved settings.

10. Starting the DPM Services

Click **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in. Start all the services starting with *DeploymentManager*.

Right-click the service name, and click **Start**.

11. Restarting IIS

Launch a command prompt, and enter the following command:

```
iisreset /restart
```

10.5. Backing up and Restoring NEC ESMPRO Manager

Note:

▪ If you copy and paste the commands described in this section, it might cause an execution error. Enter the commands directly.

▪ Environment variables of Windows OS are different according to whether it is x86 OS or x64 OS. The environment variable in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "%ProgramFiles(x86)%" for "%ProgramFiles%."

▪ A registry path of Windows OS is different according to whether it is x86 OS or x64 OS. The registry path in this section is indicated in the x86 OS format. If you are using x64 OS, substitute "HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node" for "HKEY_LOCAL_MACHINE\SOFTWARE."

10.5.1. Backing up NEC ESMPRO Manager

To back up NEC ESMPRO Manager, follow the procedure below:

Note: Log into NEC ESMPRO Manager with a user that has the Administrator authority.

1. Ending applications

End NEC ESMPRO Manager and all applications related to NEC ESMPRO Manager.

Applications related to NEC ESMPRO Manager are as follows:

- NEC ESMPRO Agent
- ClientManager
- Netvisor
- NetvisorPro
- UXServerManager

Note: If any related product is installed, confirm the backup procedures offered by each compatible product, and then back up NEC ESMPRO Manager.

2. Stopping NEC ESMPRO Manager Services

If any ESMPRO-related product is installed, stop its service.

Click the **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Services** to start the Services Snap-in. From **Services**, right-click the following services, and click **Stop**.

- NVBase System Service and related services
- Alert Manager Main Service
- DianaScope ModemAgent
- ESMPRO/SM Common Component
- ESMPRO/SM Web Container
- SNMP Trap Service

Note: SNMP Trap Service may not be started depending on the setting.

3. Backing up database (files)

Back up the following database (files).

- Files in the ESMWORK folder

  NEC ESMPRO Manager installation folder\ESMWORK

  Note:

  ▪ The following folders are unnecessary to back up:

  ▪ \ESMWORK\AMWORK folder

  This folder may not exist depending on the NEC ESMPRO Manager version.

  ▪ \ESMWORK\DATA\Alert folder

  ▪ The default installation folder is "%ProgramFiles%\NEC\SMM."

- AMVSCKR.LOG

  NEC ESMPRO Manager installation folder\NVWORK\AMWORK\sck\AMVSCKR.LOG

  Note: Depending on the environment, the file path changes as follows:

  ▪ *NEC ESMPRO Manager installation folder*\AlertMan\Work\sck\AMVSCKR.LOG

  ▪ *NEC ESMPRO Agent installation folder*\AlertMan\Work\sck\AMVSCKR.LOG

- Files in the ESMWEB folder
  - *NEC ESMPRO Manager installation folder*\ESMWEB\wbserver \webapps\esmpro\WEB-INF\service
  - *NEC ESMPRO Manager installation folder*\ESMWEB\wbserver \webapps\esmpro\WEB-INF\db
  - *NEC ESMPRO Manager installation folder*\ESMWEB\pkgpool

Note: *pkgpool* folder stores update packages by default. If another folder was specified when the NEC ESMPRO Manager was installed, the specified folder is the target of backup.

- Files in the AlertMan folder
  - *NEC ESMPRO Manager installation folder*\AlertMan\Security
  - *NEC ESMPRO Manager installation folder*\AlertMan\WORK\SCK
  - *NEC ESMPRO Manager installation folder*\AlertMan\WORK\ALV
  - *NEC ESMPRO Manager installation folder*\AlertMan\WORK\DATA
  - *NEC ESMPRO Manager installation folder*\ AlertMan\Program\AMRLIGHT.INI

Note:

▪ The above folders and files may not exist according to circumstances of related product installation.

▪ The AlertMan folder is created under the folder of a product installed the first in the products. For example, if NEC ESMPRO Agent is installed with its default value before installing NEC ESMPRO Manager, the installing folder will be %SystemDrive%\ESM\AlertMan.

4. Backing up registries

Back up the following registries:

HKEY_LOCAL_MACHINE\SOFTWARE\NEC\ESMAlertMan keys

HKEY_LOCAL_MACHINE\SOFTWARE\NEC\ESMSM keys

HKEY_LOCAL_MACHINE\SOFTWARE\NEC\NVBASE keys

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\NVBASE keys

5. Saving the data of access authority to the database file and the registry

Save the data of the database file and access authority of the registry. If you specify the default user group (Administrator) as an NEC ESMPRO User Group, the settings are as follows:

Administrators	Full Control
Everyone	Read
SYSTEM	Full Control

6. Restarting the machine or starting related services

Restart the machine or start the stopped related services.

10.5.2. Restoring NEC ESMPRO Manager

To restore NEC ESMPRO Manager, perform the following procedure:

Note:

▪ Log into NEC ESMPRO Manager with a user that has the Administrator authority. Because login accounts (user names and passwords) also will be restored, login with the account that backed up NEC ESMPRO Manager.

▪ After restoring, ensure that the system works without any problem. Then start the system operation.

1. Ending applications

End all operating applications regarding NEC ESMPRO Manager, if there are some.

2. Stopping the services of NEC ESMPRO Manager

Stop the services of NEC ESMPRO Manager with the procedure 2 in Subsection 10.5.1, "Backing up NEC ESMPRO Manager."

3. Restoring the database (files)

Restore the database (files) backed up in the procedure 3 in Subsection 10.5.1, "Backing up NEC ESMPRO Manager."

4. Restoring the registries

Restore the registries backed up in the procedure 4 in Subsection 10.5.1, "Backing up NEC ESMPRO Manager."

5. Configuring the access authority

Configure the access authority that you saved in the procedure 5 in Subsection 10.5.1, "Backing up NEC ESMPRO Manager."

6. Checking if WMI repository is restored

WMI repository may not be restored depending on backup software and its options. Check if WMI repository is restored with the following check procedure:

[Check procedure]

1. Click **Start** menu, and click **Control Panel**. From **Control Panel**, double-click **Administrative Tools**. From **Administrative Tools**, double-click **Computer Management**.
2. The **Computer Management** dialog appears. Click **Services and Applications**, click **WMI Control**, and click **Properties** on the right-click menu.
3. The **WMI Control Properties** dialog appears. Click the **Security** tab.
4. Check that **PVM** and **WSX** exist under **Root** ― **NEC** ― **ESMPRO** ― **SM**.

If **PVM** or **WSX** does not exist, register WMI repository with the following registration procedure. If both **PVM** and **WSX** exist, skip to the procedure 7.

[Registration procedure]

1. Click **Start** menu, click **All Programs**, click **Accessories**, and click **Command Prompt**.
2. Change the current directory.

```
cd /d NEC ESMPRO Manager installation folder
\ESMPRO\ESMMNG\bin
```

Note: The default installation folder path is "%ProgramFiles%\NEC\SMM."

3. Run the following command.
   - If **PVM** does not exist
     ```
     mofcomp -class:forceupdate esmpvm.mof
     ```
   - If **WSX** does not exist
     ```
     mofcomp -class:forceupdate esmsmwsx.mof
     ```

7. Restarting the machine or starting the stopped services

Restart the machine or start the stopped related services.

Appendices

- Appendix A Monitoring Profile 491
- Appendix B Revision History 495
- Appendix C License Information 497

Appendix A Monitoring Profile

Monitoring Profile is a set of performance indicators of System Monitor - Performance Monitoring Services' data collection and threshold monitor settings. The performance indicators, collection intervals for data collection of System Monitor - Performance Monitoring Services, and threshold monitor settings can be changed according to which monitoring profile is selected.

For details of performance indicators, see Section 1.3, "Collected Performance Data" in *System Monitor - Performance Monitoring Services User's Guide*.

The default value of each monitoring profile is shown below.

- Standard Monitoring Profile

  Collects performance data of the following performance indicators:

  Accesses to OS of the managed machine with the specified account and obtains the performance data.

Performance Indicator	Collection Intervals
CPU Usage (%)	1 min. / 5 min. / 30 min. *1
Disk Transfer Rate (Bytes/sec)	1 min. / 5 min. / 30 min. *1
Disk Space (MB)	1 min. / 5 min. / 30 min. *1
Physical Memory Space (MB)	1 min. / 5 min. / 30 min. *1

*1 Collection Intervals can be changed depending on which monitoring profile is selected:
Standard Monitoring Profile (1min) : 1 minute
Standard Monitoring Profile (5min) : 5 minutes
Standard Monitoring Profile (30min) : 30 minutes

- VM Standard Monitoring File

  Exclusively for virtual machines.

  Collects performance data of the following performance indicators:

  Obtains the performance data from each virtual infrastructure software without accessing to the guest OS.

Performance Indicator	Collection Intervals
Guest CPU Usage (%)	5 min. / 30 min. *1
Guest CPU Usage (MHz)	5 min. / 30 min. *1
Host CPU Usage (%) *2	5 min. / 30 min. *1
Host CPU Usage (MHz) *2	5 min. / 30 min. *1
Guest Disk Transfer Rate (Bytes/sec) *2 *4	5 min. / 30 min. *1
Guest Disk Usage (MB) *3	5 min. / 30 min. *1
Guest Disk Usage (%) *3	5 min. / 30 min. *1
Guest Network Transfer Rate (Bytes/sec) *2 *4	5 min. / 30 min. *1
Guest Memory Usage (%) *4 *5	5 min. / 30 min. *1

Performance Indicator	Collection Intervals
Guest Memory Usage (MB) *4 *5	5 min. / 30 min. *1
Host Memory Usage (%) *4	5 min. / 30 min. *1
Host Memory Usage (MB) *4	5 min. / 30 min. *1

*1 Collection Intervals can be changed depending on which monitoring profile is selected:
VM Standard Monitoring Profile (5min) : 5 minutes
VM Standard Monitoring Profile (30min) : 30 minutes

*2 If the virtualization infrastructure is Xen, the performance data are not obtained.

*3 If the virtualization infrastructure is ESX, VMware Tools must be installed into virtual machines.

*4 If the virtualization infrastructure is KVM, the performance data are not obtained.

*5 If the virtualization infrastructure is Hyper-V, it is necessary to enable "Dynamic Memory" feature for the virtual machines.

- VM Monitoring Profile

  Exclusively for virtual machines.

  Collects performance data of the following performance indicators:

  Accesses to the guest OS with the specified account in order to obtain the performance data of CPU Usage (%), Disk Space (MB), and Physical Memory Space (MB). Obtains other performance data from each virtual infrastructure software without accessing to the guest OS.

Performance Indicator	Collection Intervals
CPU Usage (%)	5min. / 30 min. *1
Host CPU Usage (%) *2	5min. / 30 min. *1
Host CPU Usage (MHz) *2	5min. / 30 min. *1
Disk Space (MB)	5min. / 30 min. *1
Guest Disk Transfer Rate (Bytes/sec) *2 *3	5min. / 30 min. *1
Guest Network Transfer Rate (Bytes/sec) *2 *3	5min. / 30 min. *1
Physical Memory Space (MB)	5min. / 30 min. *1
Host Memory Usage (%) *3	5min. / 30 min. *1
Host Memory Usage (MB) *3	5min. / 30 min. *1

*1 Collection Intervals can be changed depending on which monitoring profile is selected:
VM Monitoring Profile (5min) : 5 minutes
VM Monitoring Profile (30min) : 30 minutes

*2 If the virtualization infrastructure is Xen, the performance data are not obtained.

*3 If the virtualization infrastructure is KVM, the performance data are not obtained.

- Physical Machine Monitoring Profile

  Collects performance data of the following performance indicators:

  For Current Power (W), machine IPMI information must be configured to be able to be seen from SystemProvisioning.

  Accesses to the guest OS with the specified account in order to obtain the performance data other than the Current Power (W).

Performance Indicator	Collection Intervals
CPU Usage (%)	1 min. / 5 min. / 30 min. *1
Disk Transfer Rate (Bytes/sec)	1 min. / 5 min. / 30 min. *1
Disk Space (MB)	1 min. / 5 min. / 30 min. *1
Physical Memory Space (MB)	1 min. / 5 min. / 30 min. *1
Current Power (W)	30 min. *2

*1 Collection Intervals can be changed depending on which monitoring profile is selected:

Physical Machine Monitoring Profile (1min) : 1 minute

Physical Machine Monitoring Profile (5min) : 5 minutes

Physical Machine Monitoring Profile (30min) : 30 minutes

*2 Collects performance data every 30 minutes without depending on monitoring profiles.

Appendix B Revision History

- First Edition (September 2012): New

Appendix C License Information

This product includes certain open source software.
Details of individual licenses are provided on the *SigmaSystemCenter DVD*

<*SigmaSystemCenter Installation DVD*>\doc\OSS directory.

Please contact us in order to obtain the source code of software that is distributed under the LGPL.

▪ PXE Software Copyright (C) 1997 - 2000 Intel Corporation.

▪ This product contains JRE (Java Runtime Environment) which is distributed by Oracle Corporation without charge. Use this product after accepting the license agreement. For details of copyright and ownership rights, refer to the following license files:
<*folder where JRE is installed*>\LICENSE

▪ Some icons used in this program are based on Silk Icons released by Mark James under a Creative Commons Attribution 2.5 License. Visit http://www.famfamfam.com/lab/icons/silk/ for more details.

▪ This product includes software developed by Routrek Networks, Inc.

▪ Copyright 2005 - 2010 NetApp, Inc. All rights reserved.